CHNOLOGY DEPT.

Gas Journal

VOL. 278 106TH YEAR. LONDON, JUNE 30, 1954 NO. 4752. PRICE 1/3

Mr. Therm introduces

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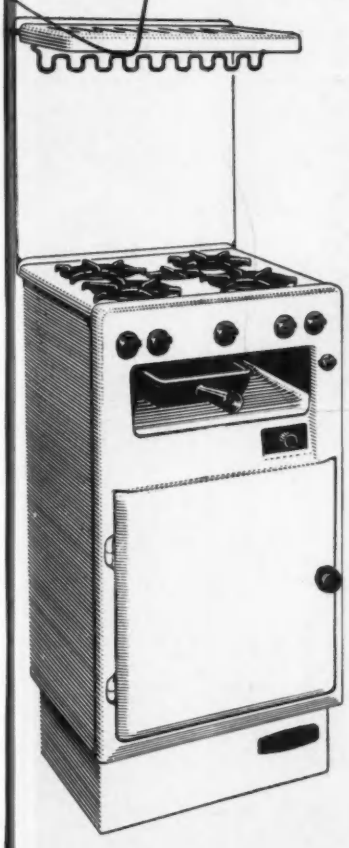
in the Kitchen



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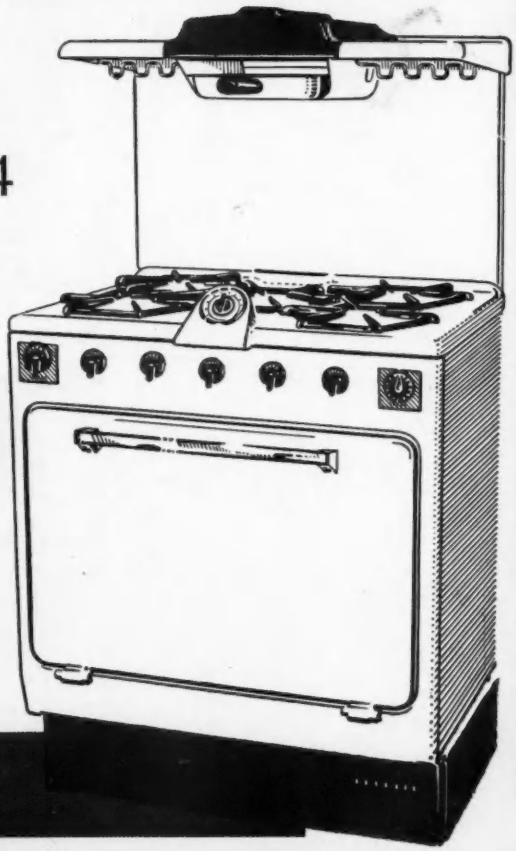

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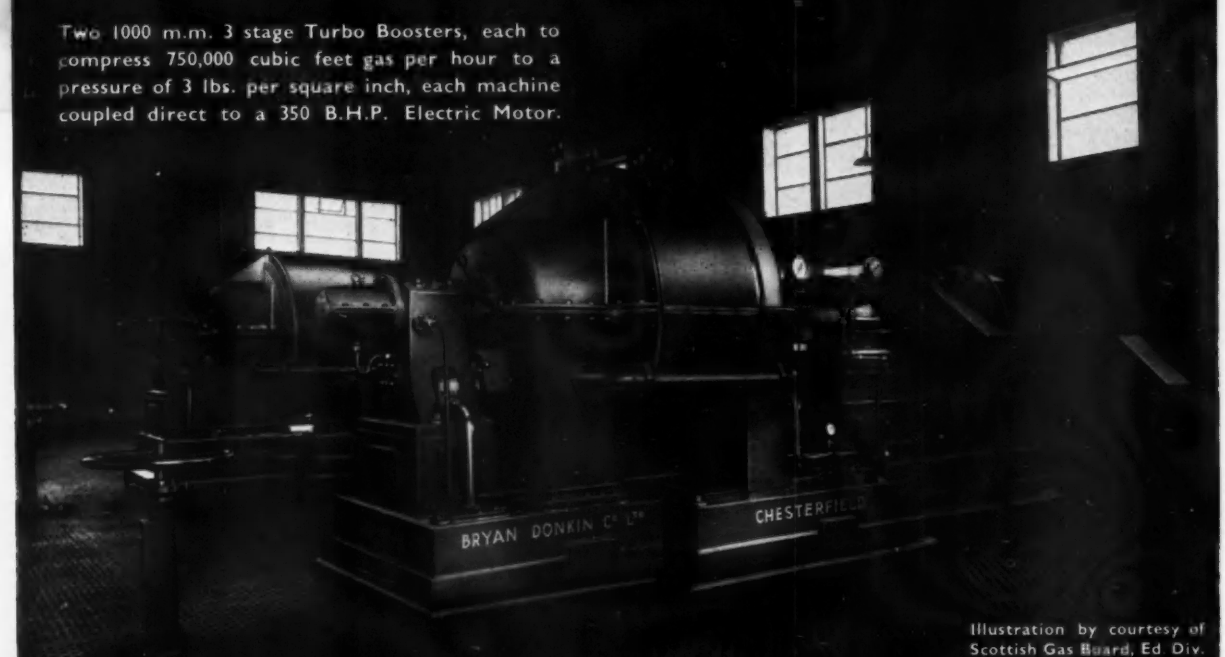

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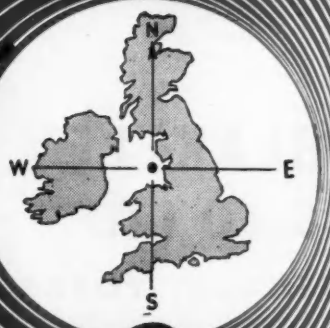

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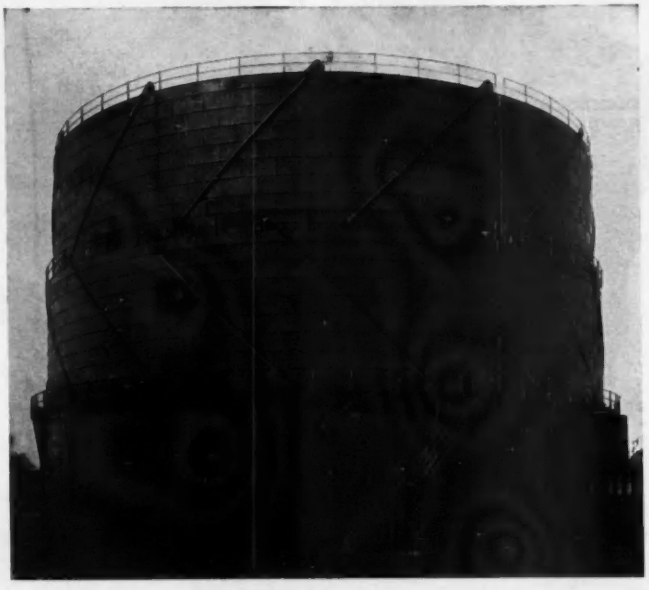

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Illustrated is the J.47 Service and Appliance Governor, and typical of the many types of JEAVONS Governors produced for ALL purposes.

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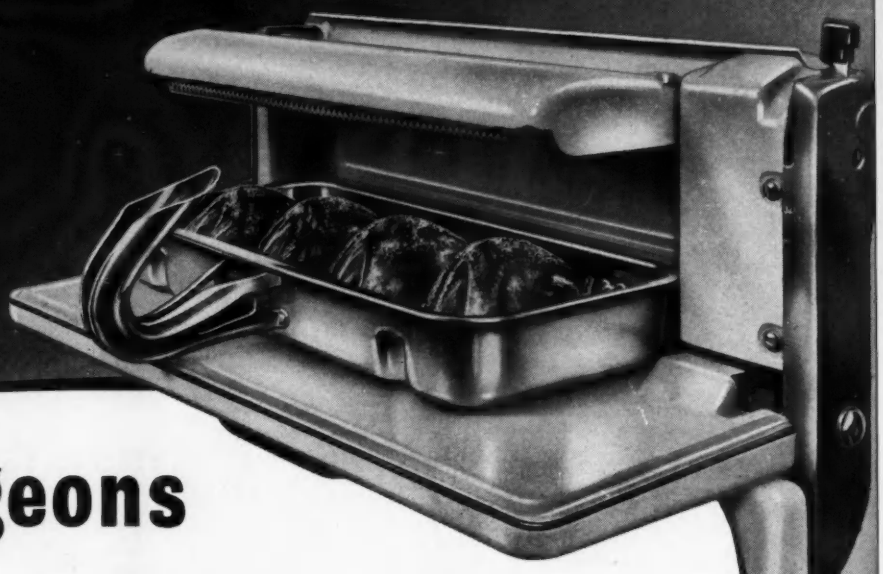
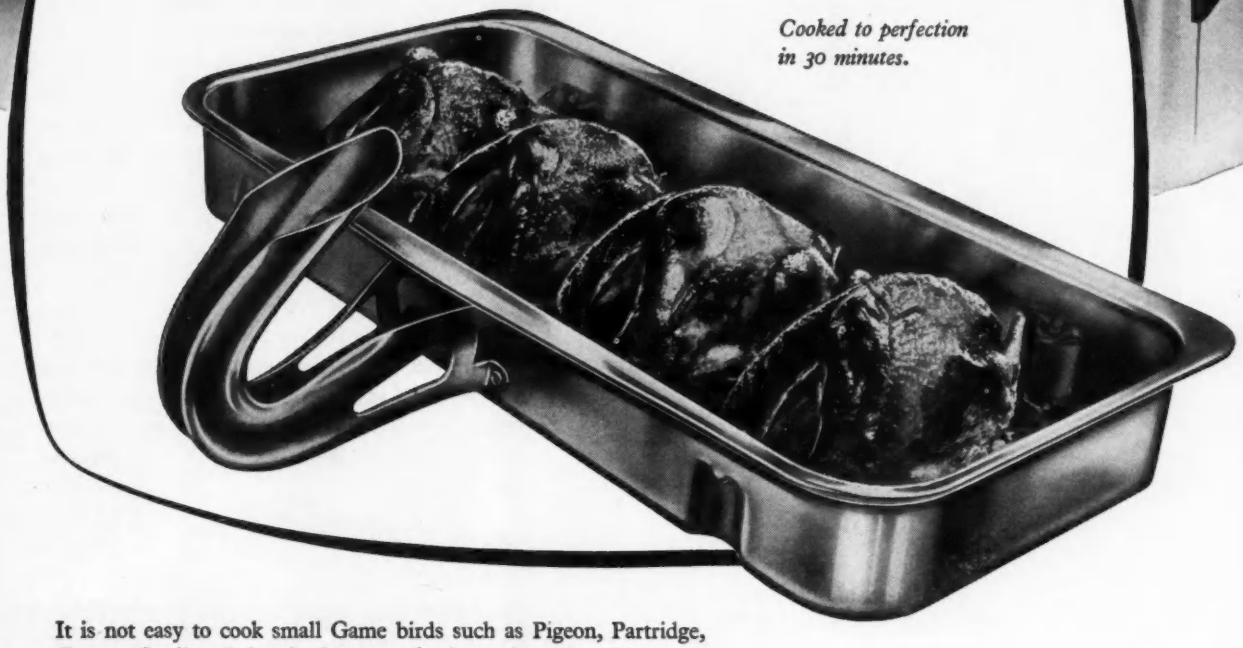
The grill that will cook...



...4 Pigeons

Cooked to perfection in 30 minutes.



It is not easy to cook small Game birds such as Pigeon, Partridge, Grouse, Quail or Snipe, in the oven of a domestic cooker. The oven, of course, must be pre-heated for 20 minutes, and even in the relatively short time required for cooking, the birds need basting to prevent the breast drying. The Pigeons shown above were cooked to perfection in 30 minutes. They were turned twice whilst cooking, basted frequently, and because they could be seen at a glance without stooping, it was possible to see exactly the moment they were ready to dish up.

This is an ideal method of cooking poultry of this type, which is made possible by the great width and depth of the Cannon Foldaway Eye-level Grill.

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Exclusive to the

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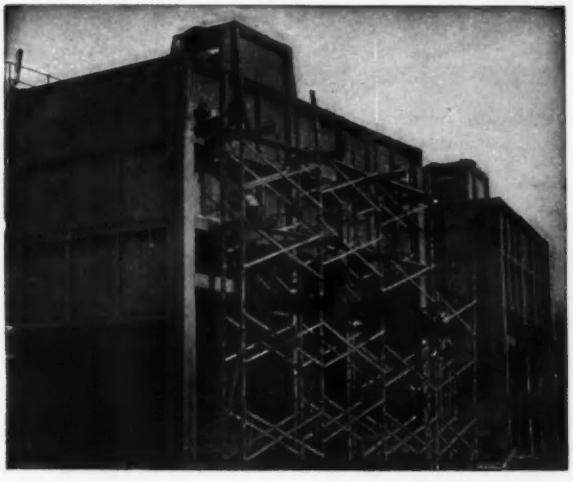
Gunite



One of the reinforced concrete structures reconditioned with Gunite for the City of Carlisle Gas Undertaking.

Gunite—concrete applied by air pressure—has numerous applications where its great density and extreme adhesion have exceptional value.

For repairing reinforced concrete it has particular merit, as, due to the method of application, a uniform density and adherence is obtained whenever Gunite is applied.

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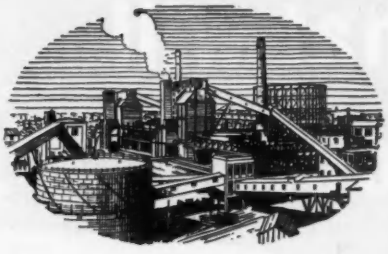
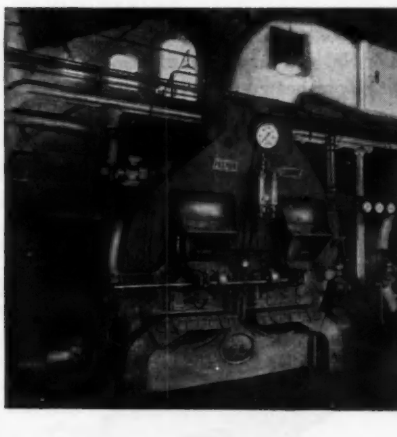
PAXMANS IN THE GAS INDUSTRY



Getting the Best out of Breeze

It is well-known that coke breeze as a by-product of the Gas Industry presents a problem in respect of its efficient disposal. Potential heat-and steam-raising qualities are available, but as every Combustion Engineer knows, there are difficulties associated with the burning of coke breeze. We have specially designed Economic Boilers to meet these peculiar conditions and our claim to raise steam from coke breeze with the maximum of efficiency combined with low carry-over is undisputed.

The illustration shows an Economic Boiler burning 100% coke breeze at the Reading Gas Works. This is only one of many such installations in the Gas Industry. If you have a coke breeze problem let us examine it and present our proposals.



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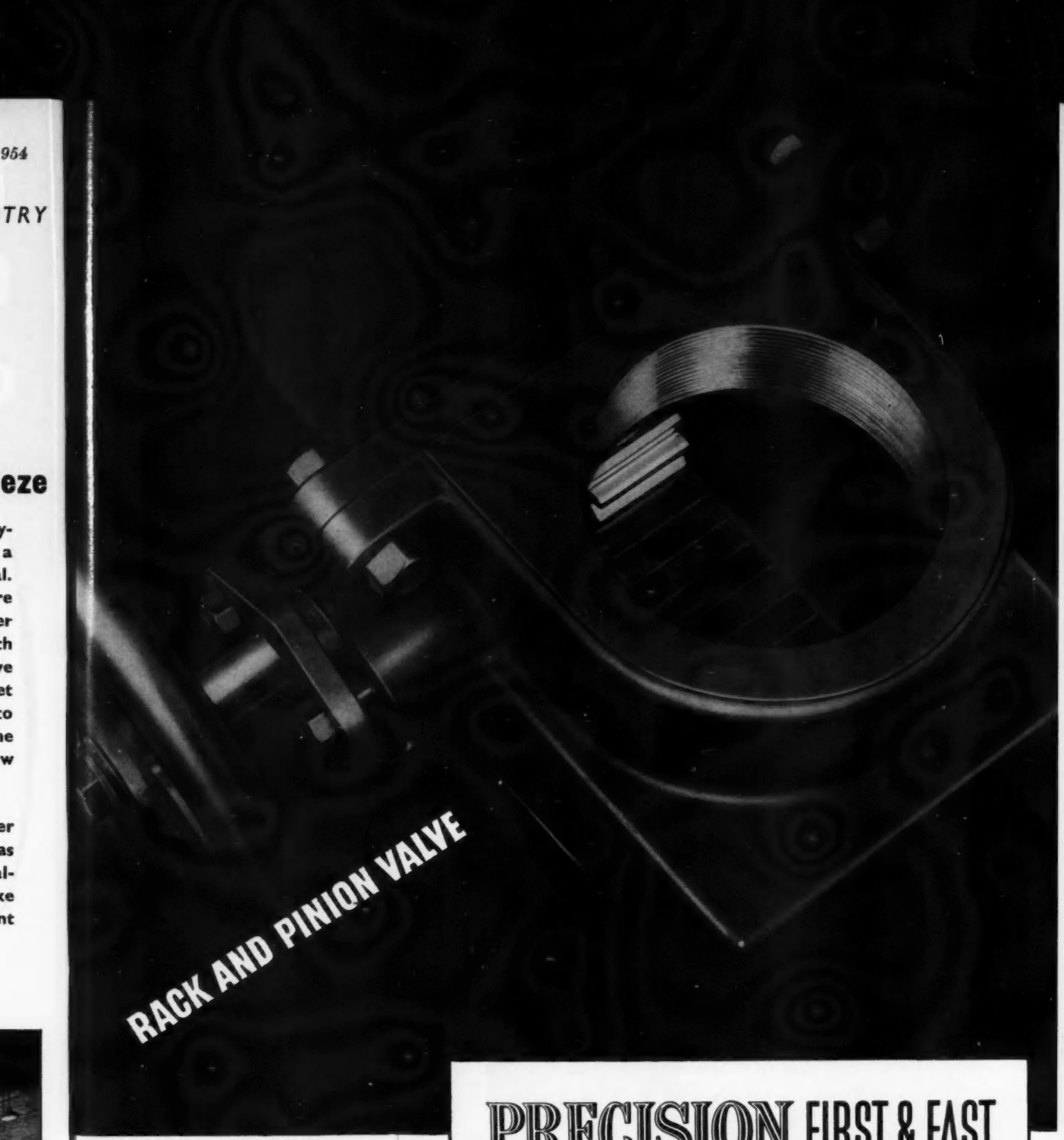

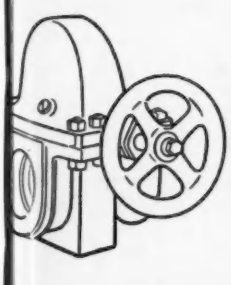

Freer opening and faster shut-off. Pinion and buffers made from a specially selected grade of corrosion-resisting bronze. Action keeps body seating free from deposit. 2", 3" and 4" valves are available with screwed ends; above 4" with double flanged ends. Clockwise or anti-clockwise closing.

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The N.S.P.C.C. is not nationalised and depends entirely on voluntary contributions. This 70th anniversary year we are making a double appeal to the public: help us in our work by reporting to us any cases of children who need our assistance, and please continue to give us your financial support.

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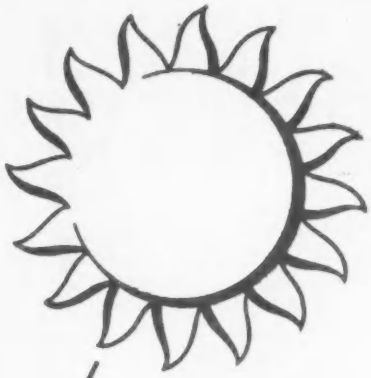

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Their brilliant lustre has its advantages . . . pleasing appearance and the reflection of light and solar heat.

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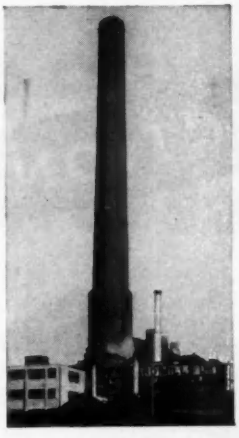
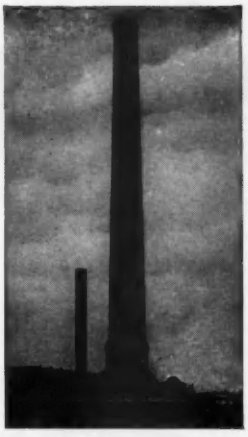
In addition there is no harmful vibration, distortion or excessive noise during construction.

The successful completion of over 4 million feet of Bored Piling during the last fifteen years is an achievement which speaks for itself.

Left : Trial borings for reconstruction of Coventry Cathedral.





Two of the largest chimneys in the British Isles; on foundations of Francois Concrete Piles (left) and Francois Cementation Piles (Right)

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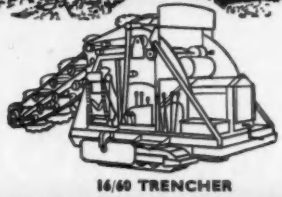

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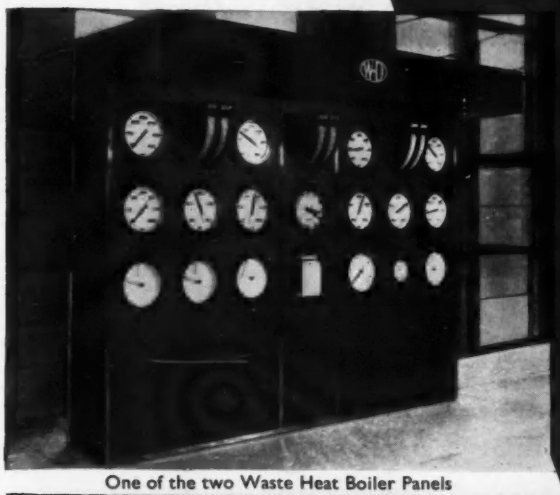
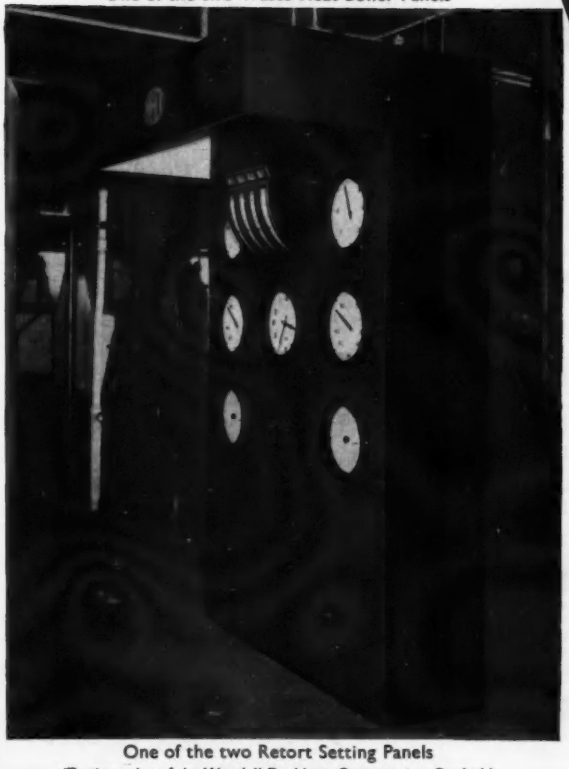


One of the two Waste Heat Boiler Panels



One of the two Retort Setting Panels
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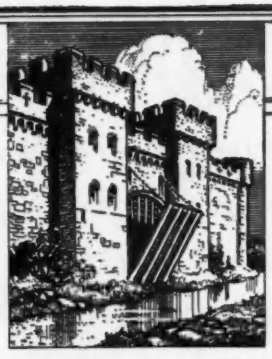

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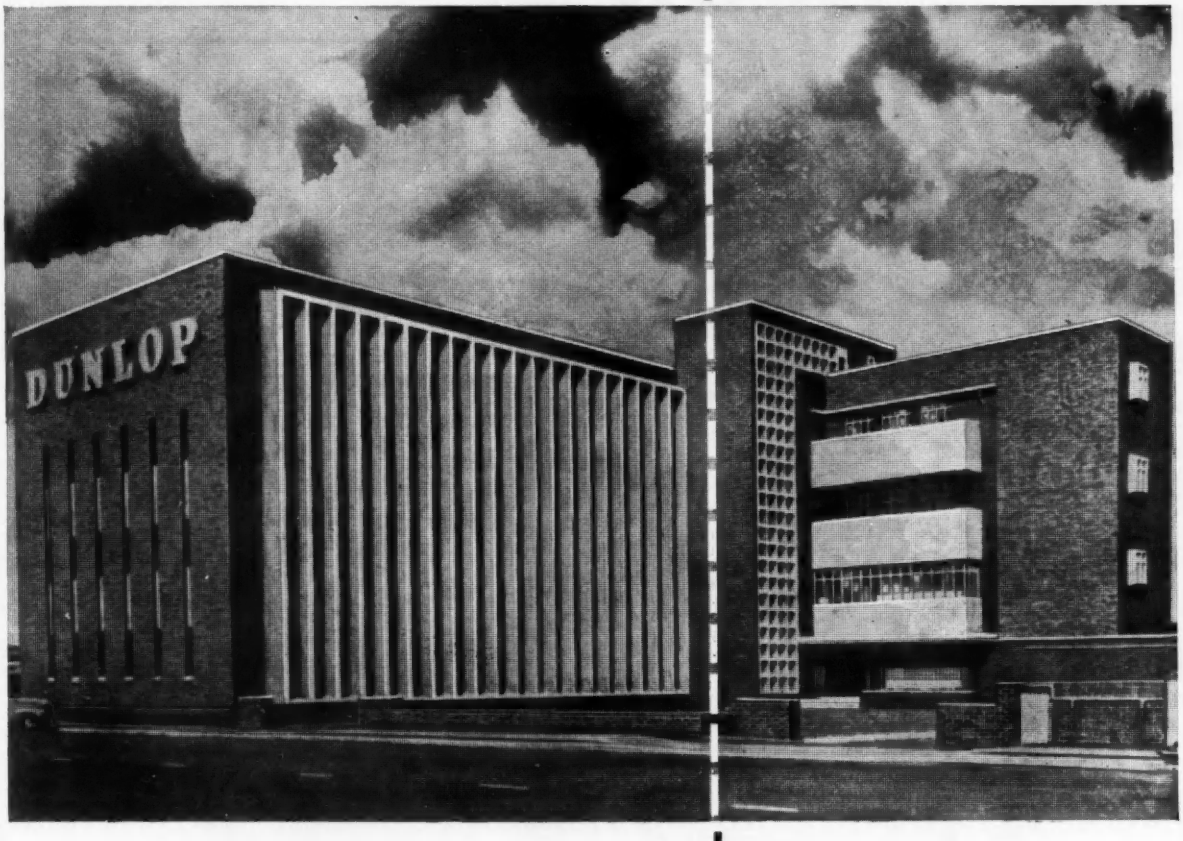

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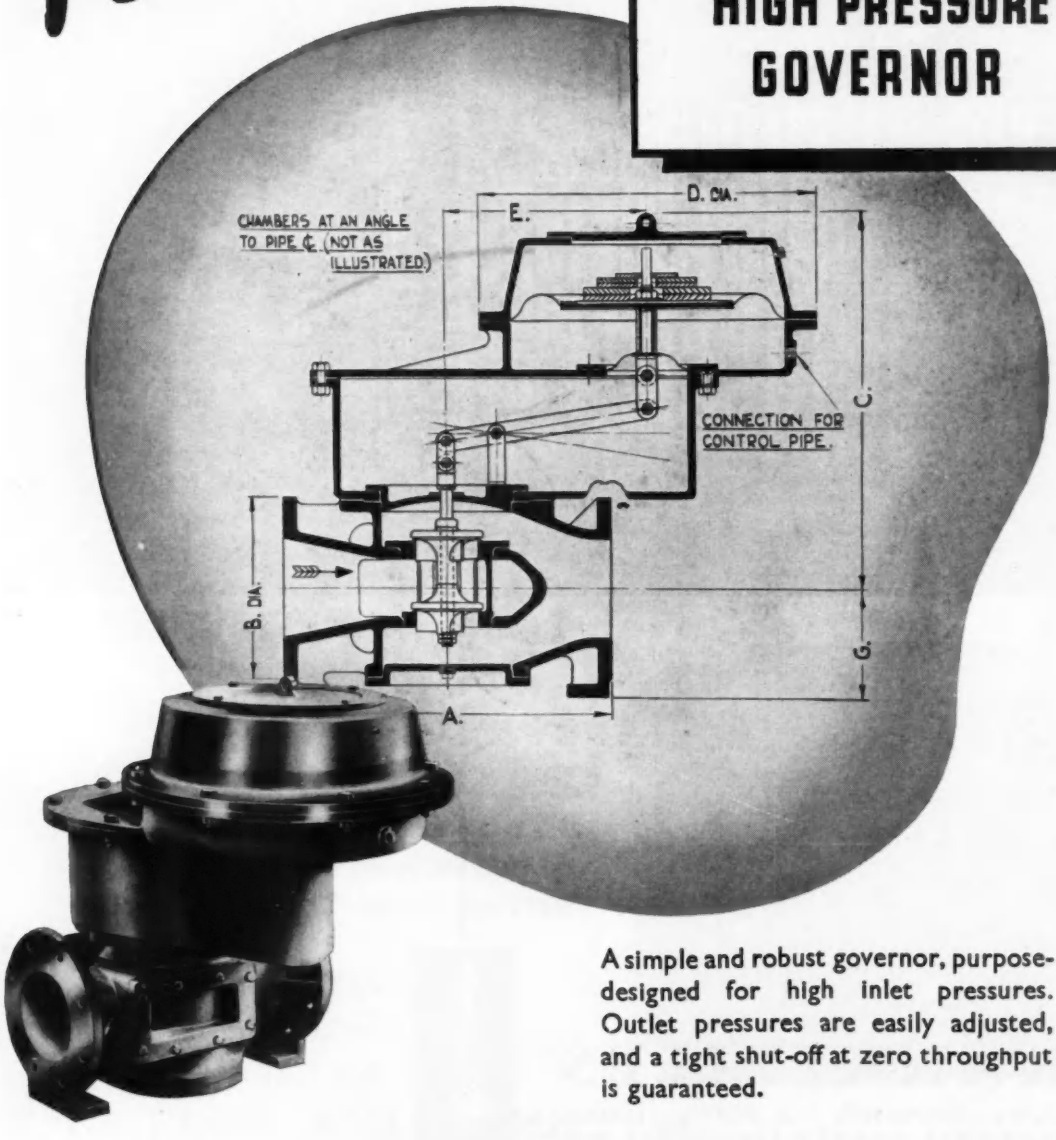
THE FIGURE 124 HIGH PRESSURE GOVERNOR



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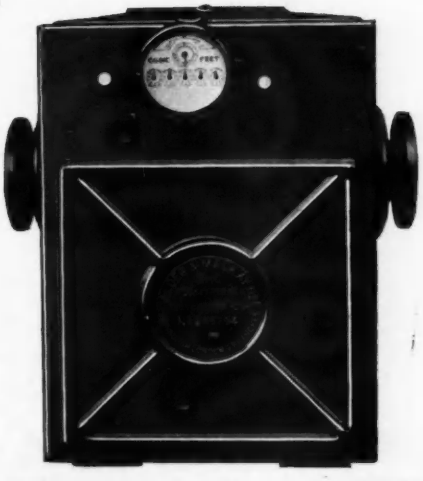

Illustrated is the 1,200 c.ft. per hour S.H.C. METER. Industrial meters are offered in a range from 450 to 20,000 c.ft per hour. Facilities for oiling the valves are fitted as standard.

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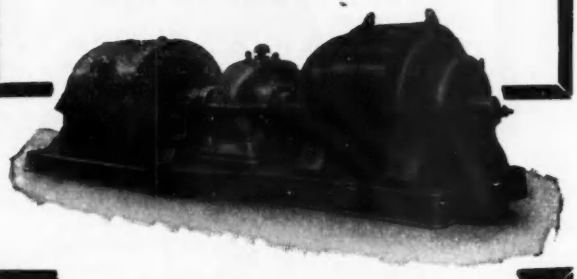

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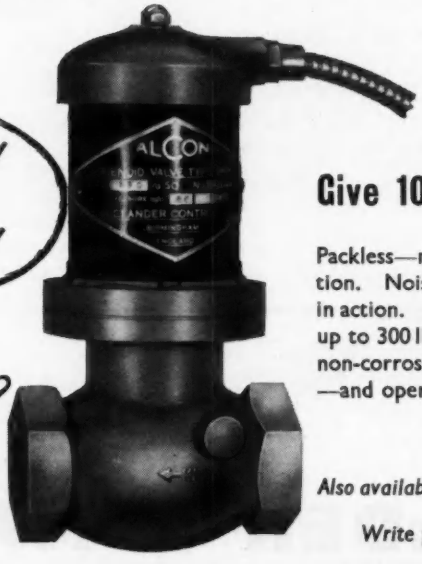

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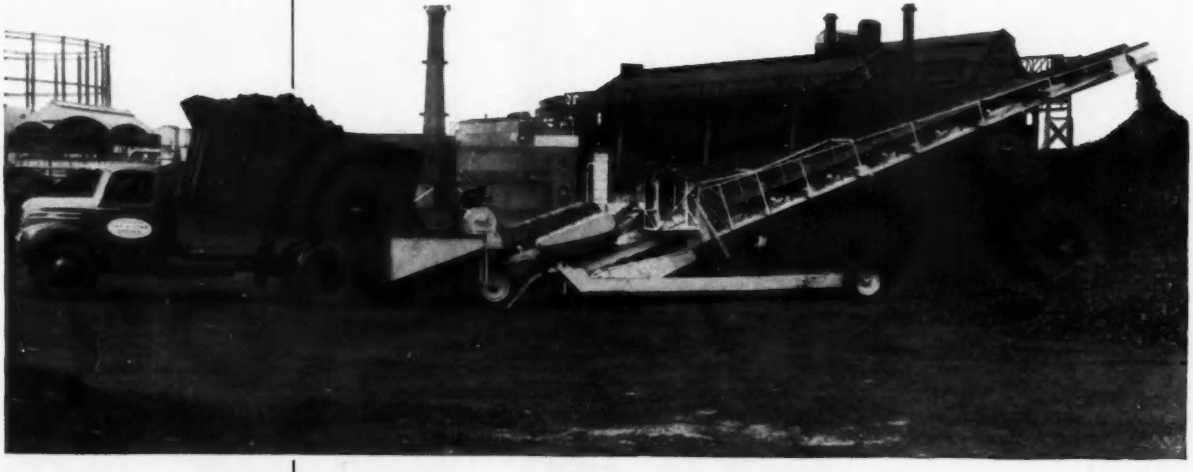

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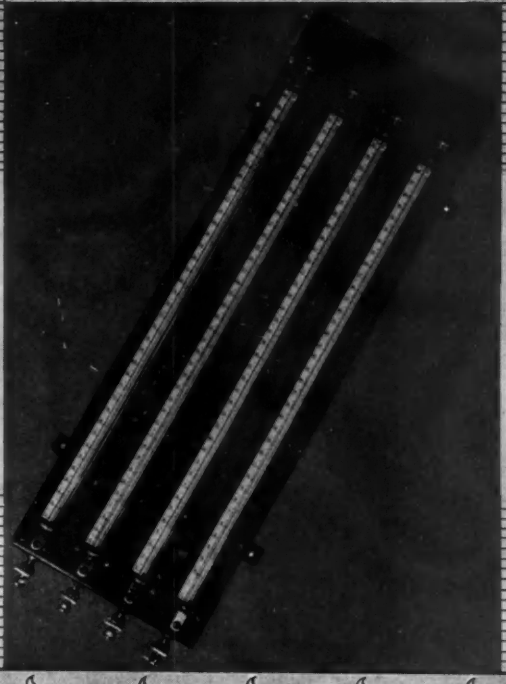

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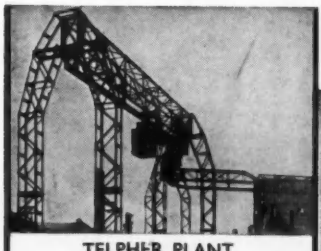

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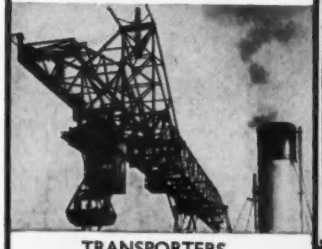

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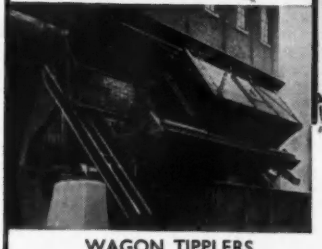

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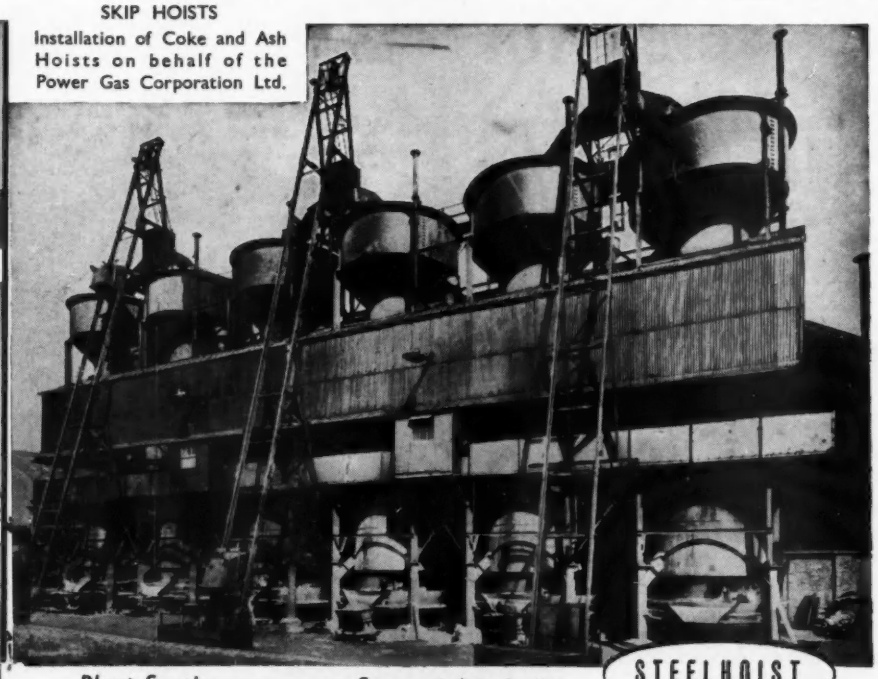

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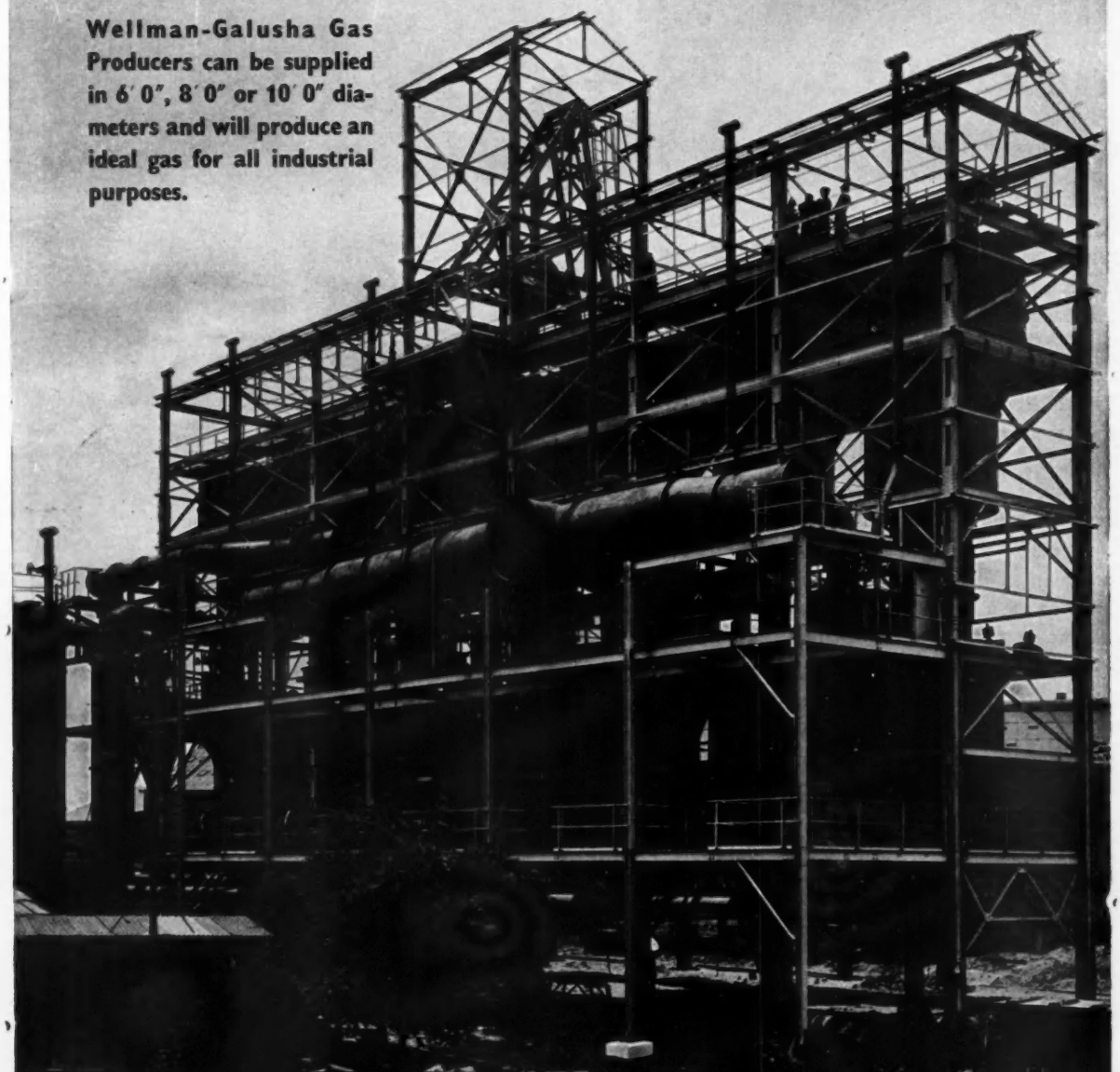

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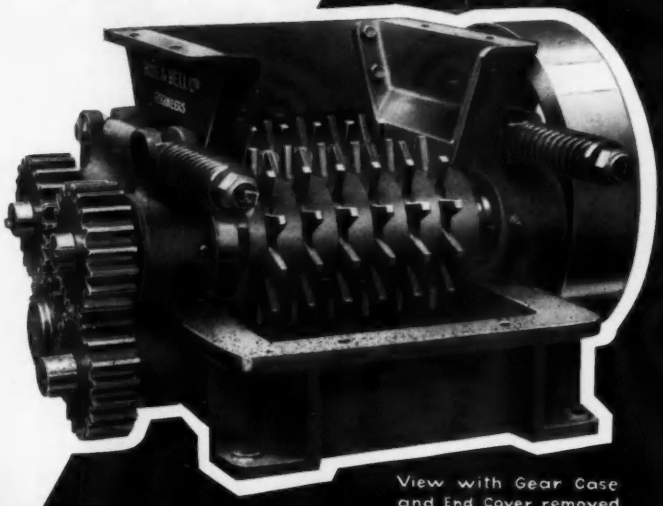

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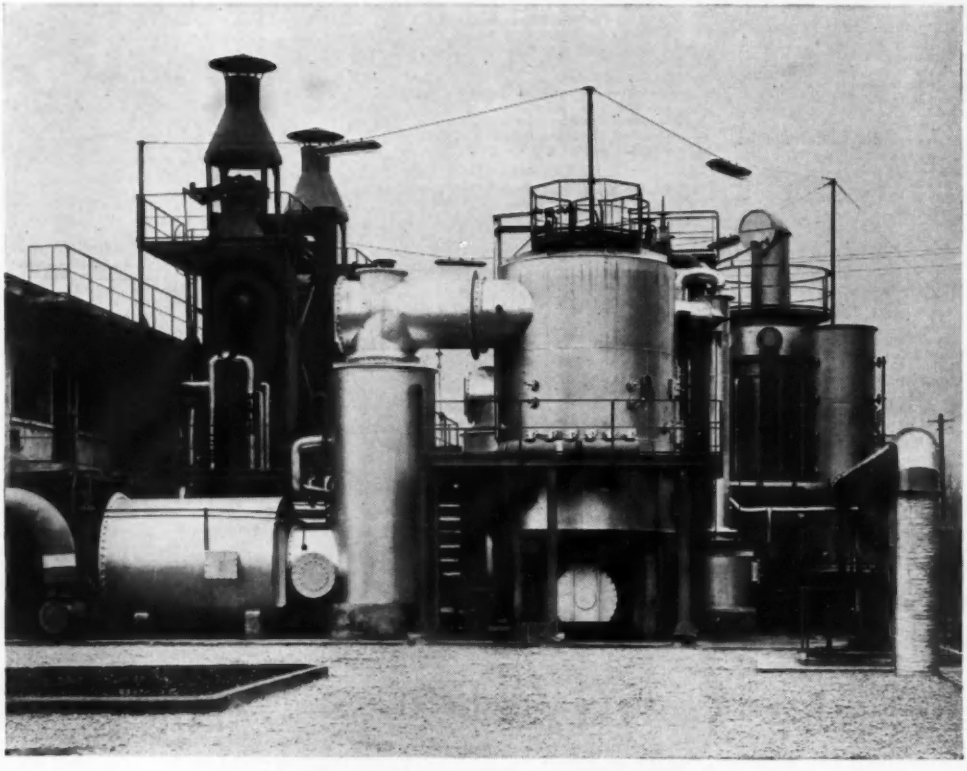

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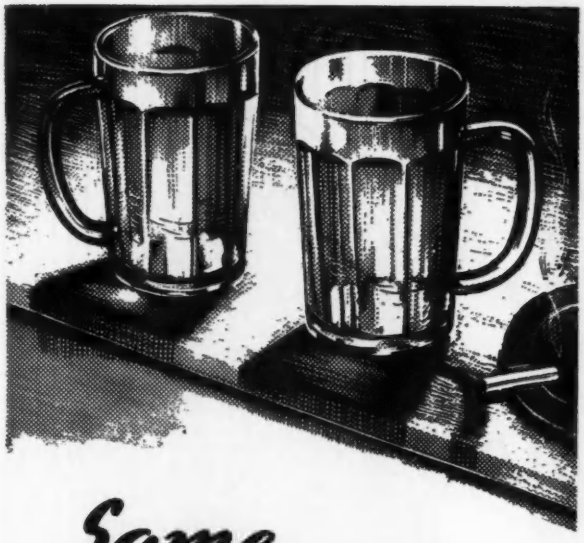

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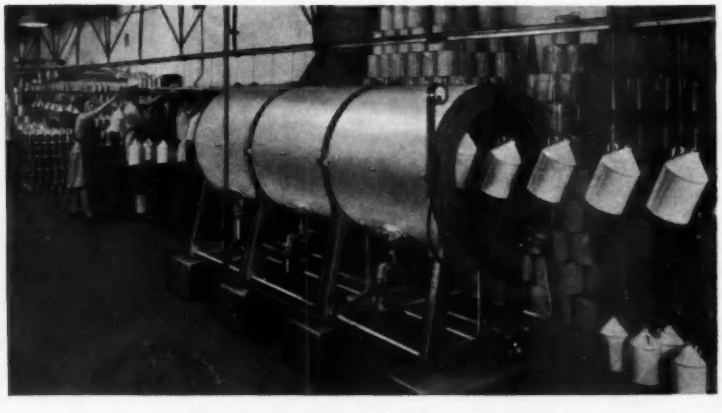

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Gas Journal

VOL. 278. No. 4752 106TH YEAR June 30, 1954

GREAT EXPECTATIONS

On June 23, at 791 ft. in Ashdown Well, No. 1, there was a 'gas show.' With that exciting news Sir Harold Smith concluded a short address last Thursday to some 75 members of the national and technical Press who at the Gas Council's invitation had travelled down to Crowborough to see for themselves what the D'Arcy Exploration Company is doing for the Council's natural gas project—£1 mill. 'in the kitty' for five years; probably a 'sweetener' when required.

The news broke after Sir Harold had viewed the possibility of striking natural gas in commercial quantities. 'We have heard,' he said, 'of the likelihood of atomic energy becoming available for electricity generation—saving the equivalent, possibly, of 20 mill. tons of coal per annum. The electricity industry are not suggesting any cheaper electricity. But we are in competition with them; and if we tap natural gas, we shall expect to be able to supply at considerably lower prices than at present. Up to yesterday it was even money that our exploration work would get a place; but at breakfast this morning I had the news that there had been a "gas show" without water or other fluid." The salient facts are as follows (we have not had time to assemble geological data and working details): On June 23 gas showed when a $7\frac{7}{8}$ in. bore was 791 ft. deep and in the 'Portland Formation' of substrata. It was a most favourable sign that a worth-while deposit would be found before 1,055 ft. At the average rate of drilling, 1,000 ft. should be reached by the end of this week.

Should the 5 to 1 chance (even money a place) come off, there will be cheers and congratulations throughout the gas industry; high-level negotiations between the Gas Council and the Ministry arising from the provisions of the Petroleum Act, 1934; and a major flurry of accountants. Meanwhile, if the bore showed high potential, it would be capped off and plans (already laid) set in motion for transit of the yield to Tonbridge for re-formation or neat distribution.

Sir Harold Smith's address is reported on p. 904. It reviews the preliminary work and brings the whole project up to date.

GAS IN THE SOUTH WEST

Integration in practice and in development in the South Western area is an interesting example of what can be done now that the fetters are removed. The story can be traced in the excellent maps with which Mr. C. H. Chester, Chairman of the South Western Gas Board, illustrated the paper which he presented at the annual meeting of the Institution of Gas Engineers. The land boundary of the area runs from the Welsh border just north of Ross-on-Wye, east to Tewkesbury, rounding Bidford-on-Avon (just south of Stratford-upon-Avon), turning south running east of Chipping Campden, Moreton-in-Marsh, Stow-on-the-Wold (lovely old names) and of Swindon, swinging west below Hungerford, striking the south coast just east of Seaton. The other boundary is the sea—the Channel, the Irish Sea, Bristol Channel, and the estuary of the Severn. Population and industry is concentrated round Bristol, with 400,000 inhabitants; Bath is 12 or 13 miles away with 73,000 people, while Weston-super-Mare is 21 miles away with 29,000. To the north there is concentration of population and growing industry at Cheltenham, 75,000, and Gloucester, 53,000, eight to nine miles apart. In the middle and south are Exeter with 69,000 inhabitants and Torquay 23 miles away on the coast with 46,000. West is Plymouth and Devonport with 208,000 inhabitants. Further west there are Truro, 11,000, Falmouth, 13,000, 50 to 60 miles from Plymouth, and Penzance 11,000, 80 miles away. Possibly it is in this extreme western region that the rapid growth of population mentioned by Mr. Chester is taking place. Other lesser centres are Taunton with 25,000 people and Barnstaple and Bideford, nine miles apart, with 24,000 between them.

No doubt the wise course at the outset was to group control around each of these eleven centres of population. Retaining, largely, existing managements in office enabled the change of ownership to be carried through with a minimum of disturbance in operation and routine. But integration began with policy, and to give effect to policy a growing concentration of administration and control was necessary. 'It was deemed sound administration' to centralise the over-

head services of legal and secretarial and ' all financial services to the Board.' All this appears to have been carried through with commendable economies. Critics have complained of duplication of staff work incidental to concentration, but we believe that in the long run accountancy on a big scale lends itself to modern methods, mechanisation and so on, which conduce to ultimate economy. It is rather in integration on the technical and technological side that the gas engineer is interested.

The success of integration depends upon a number of factors; a reduction in cost of manufacture as the capacity of plant increases, a balance in favour of bulk supply to smaller stations, interlinkage between main manufacturing stations. There appears to have been only one instance in the South West of excessive subdivision of what is substantially one urban district, that of Plymouth and Devonport. Here, just before vesting date, the Plymouth and Stonehouse Gas Light and Coke Company was making 1,883 mill. cu.ft. annually of gas at 430 B.Th.U., while the Corporation of Plymouth was supplying the adjoining Devonport with 906 mill. cu.ft. at 450 B.Th.U. Most other centres, Cheltenham, Swindon, Weston-super-Mare, etc., were quietly expanding into the surrounding country. The policy adopted by the Board ' provides for the retention and development of a comparatively small number of carefully selected manufacturing units into permanent central manufacturing stations,' from which bulk supplies ' will go to all other stations which will eventually be shut down except for storage and distribution purposes.' A glance at the map will show that this involves bold and imaginative organisation and design of a wide-flung distribution system.

The most interesting example of interlinkage in the area is that of Bristol and Bath, where it proved its usefulness so strikingly in meeting a deficit of over 16% in Bristol's capacity in the sharp spell of cold weather last winter. Perhaps it was this success which led, in the revision of divisional boundaries, to the inclusion of Bath in the Bristol Division. No doubt this revision was governed also to a great extent by the working out of the high pressure distribution system. This is no ordinary grid. For one thing by 1960, we are told, it will involve about 5,800 miles of mains. Not only is there inter-connection and bulk supply, but here ' there must be no hesitation in affording supplies . . . . direct from the high-pressure mains ' and these mains had to be routed to pass through many villages and isolated communities which present a large potential demand for gas. It was a bold step to subjugate orthodox considerations of the ideal load factor to the probability of securing these markets and to the duty of giving gas as far as practicable to these outlying communities.

After nearly four years of rapid development in its plan of integration and with further possible economies through large scale mechanised accountancy, the Board set up a Reorganisation Committee to review the situation and to make recommendations. Every aspect of the administrative organisation was examined with particular care. The recommendations of the Committee were accepted and the new organisation came into being in April, 1954. It is this new organisation which is discussed in the fifth section of Mr. Chester's paper, ' Phase 3—The Future,' and which we reproduced in full in our issue of June 16.

Broadly, the original two major divisions with eleven sub-divisions are transformed into six divisions, while it is contemplated that manufacture will eventually be concentrated in 12 works. We have already remarked that the major part of the Bath Sub-Division is merged into the Bristol Division. Swindon takes the remainder of the Bath Sub-Division. Weston-super-Mare Division absorbs the Taunton Sub-Division. Exeter with Torquay becomes a big division stretching from sea to sea, while Plymouth dominates the rest of the peninsula with Truro as the next biggest centre of manufacture. It is most interesting to compare these divisions with the lay-out of high pressure bulk supply mains as planned for 1960.

The new organisation is straightforward. The production of gas and engineering generally forms ' a straight line or functional department ' running down from a Chief Engineer to Divisional Engineers, and accountancy is similarly ranged under a Chief Accountant. There should be no difficulty in running such an organisation even on so big a scale; nor should there be serious loss of personal drive and initiative in the dispersal of some managerial duties to specialists. The evils supposed to be inherent in centralisation of ultimate control can be avoided if appropriate machinery is set up for consultation at all levels and if this machinery is conscientiously worked. In the South West the six standing committees should provide for this. It will depend upon the Chairman and his Chiefs of Staff whether this machinery proves effective in keeping the operating engineer vitally interested in the plant entrusted to him.

FUTURE OF GAS PRODUCTION

We have already remarked upon the attitude of the Board towards the district manager and his personal contacts with consumers. There is, however, another aspect of large scale management which requires equally careful attention. And we have no doubt it is very much in the minds of most board chairmen. One of the main differences between the atmosphere of the old regime and that of the new is that under the latter the man who is to take responsibility for the operation of plant is not the man who chose and installed it. There is a danger here of a blunting of the urge to make a success of the new plant. The danger can be obviated if the operating engineer is co-opted in the choice of plant, given the opportunity of co-operating in the details of design, and encouraged to suggest improvements from the points of view of operation and maintenance. There seems no reason why this difficulty should not be perfectly met by the organisation set out in this paper.

Looking to the future of gas production, Mr. Chester foresees considerable changes within the next decade or two. For the time being in such an area as this the avoidance of atmospheric pollution, the preservation of residential amenities, will confirm the supremacy of the continuous vertical, with the intermittent vertical when combined with dry cooling, as the most suitable type of plant. The very fine installation approaching completion at Stapleton Road, Bristol, will be watched with interest. But the availability of the so-called gas coals that the industry has accepted for years *much as people accept sunrise and sunset* (our italics), will

come to an end, and, it is added, 'relatively quickly unless some change is made in the price structure of coal and in fact policy generally.' Some of the changes are foreshadowed. In any considerations of widely different methods of production the question of the combustion characteristics of the gas made is of immense importance. The standardisation of calorific value throughout the area, and at the interesting figure of 470 B.Th.U./cu.ft., is all to the good. But it may not be all that is necessary always to ensure satisfactory consumer service.

Looking forward in purification one is pleased to note that further improvement in dry purification is contemplated. There is the still possible 'dynamic' process, but more promising is the 'purifying material of constant quality . . . . a synthetic pelletted material' followed by the extraction of elemental sulphur—and finally, one hopes, the removal of organic sulphur. With regard to coke, one would think that, helped by co-operation with the electricity industry, breeze might be used on the works for steam raising. And for ammonia there is the development, in the extensive agricultural regions of this area, of its use as a direct fertiliser which Dr. Arthur Marsden has recently discussed. At any rate we may be sure that the South Western Board will not be backward with a worthy contribution to research all along the front.

Personal Notes

We announce with great regret that MR. NORMAN S. SMITH has, for reasons of ill-health, tendered his resignation as Technical Editor to the 'GAS JOURNAL.' Since the Bournemouth meeting of the Institution of Gas Engineers he has undergone a minor operation in hospital; but he is now back at his home, 6, Frognal Gardens, N.W.3.

MRS. A. E. M. OLIVER, M.B.E., Portsmouth, has retired from the position of Deputy Chairman of the Southern Gas Consultative Council on ceasing to be a member of the local authority which nominated her. MRS. E. K. BURBRIDGE, Thame, has retired for a similar reason. The appointment of the Deputy Chairman is a matter for the Minister of Fuel and Power, and an early announcement is expected.

MR. C. M. C. HATTEN has completed 30 years with the National Benzole Co., Ltd. He joined the Company from school as a junior clerk in the accounts department, and had experience of every type of work in that department. In 1930 he became head of the costing section. At the outbreak of the war he took part in the evacuation of the Company to Stonor Park, Henley, and two years later was released from his reserved occupation to join the R.A.F. Returning in 1946 he became Personal Assistant to the Secretary, Mr. H. J. Rayman, in 1948, a position that he still holds.

MR. H. G. HIGGINSON, M.S.M.A., has been appointed Sales Manager to Perl Controls, Ltd. Mr. Higginson received his apprenticeship training with the Gas Light and Coke Company and represented them at the 1933 Camp of the late King George, who was at that time Duke of York. After some years with Vickers-Armstrong, Ltd., he joined Bratt, Colbran, Ltd., as technical sales representative, and early in 1950 took over the industrial sales as industrial manager. In this capacity he often lectured to gas salesmen and fitting staff throughout the country. Mr. Higginson is a Member of the Incorporated Sales Managers' Association and of the Institute of Metal Finishing.

SIR MICHAEL BARRINGTON-WARD, K.C.V.O., C.B.E., D.S.O., has been appointed a member of the Berks and Bucks District Committee of the North Thames Gas Consultative Council as a representative of the Beaconsfield U.D.C., of which he is a member.

MR. CHARLES D. SHANN, who joined the Gas Light and Coke Company in 1928 and who has had a distinguished career in the industry and in Ministry departments during the war, has resigned his appointment as Assistant Distributing Engineer to the North Thames Gas Board. He has been appointed Manager of the Gas Engineering Department of D. & C. & William Press, whose activities are referred to on p. 924.

DR. F. J. EATON has been appointed by the North Thames Gas Board to be Deputy Manager, Watson House, but he will retain his responsibilities for coke development. MR. F. C. SMITH is to be Secretary, Watson House Centre, and MR. P. G. WRIGHT has been seconded for special duties at Watson House. The Board also announces the appointment of MR. C. PEARSON to be Divisional Manager, South Western Division; MR. A. BARRON to be transferred to the Headquarters Division for special work; MR. S. M. THOMSON to be Mechanical Engineer, Fulham; MR. E. J. OWEN to be Mechanical Engineer, Kensal Green; and MR. F. R. WAPLE to be Engineer Designer.

MR. MAURICE DOWNHAM has been appointed General Sales Manager of the Economic Gas Boiler Co., Ltd., Burnley.

He joined the staff of the Company as an office boy in 1934, and in 1939 he was appointed junior representative in North Eastern England. During the war Mr. Downham served as Captain with Royal Marine Frogmen operating in the Far East. In 1947 he returned to the Company as representative for the Southern counties, and later extended his activities to cover the area of the North Thames Gas Board.

Diary

July 1.—MIDLAND JUNIORS: Ladies' Day.

July 2.—MANCHESTER AND DISTRICT SECTION, I.G.E.: Chairman's Day, Bradford. Lunch, Connaught Rooms, 12.30 for 1 p.m.; visit to Birkshall Gasworks, 2.45 p.m.

July 2. — WALES G.C.C.: National Library of Wales, Aberystwyth, 11.30 a.m.

July 6.—SOUTH EASTERN G.C.C.: Caxton Hall, Westminster. 11 a.m.

July 6-9.—ROYAL SHOW, Windsor. Gas Council Exhibit.

July 7.—LONDON AND COUNTIES COKE SALES CIRCLE: All-day visit to Reading Gasworks, with choice of subsequent visits to (a) Huntley & Palmer's Biscuit Factory, or (b) Robert Cort & Son's Foundry.

July 8-17.—LAUNDRY, DRY CLEANING AND ALLIED TRADES' EXHIBITION, Olympia. Gas Council Exhibit.

July 9.—SOUTH WESTERN G.C.C.: 34, Bridge Street, Taunton, 11.30 a.m.

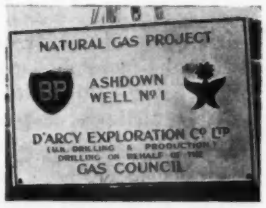
July 19.—EASTERN G.C.C.: Connaught Rooms, Great Queen Street, Kingsway, W.C.2.

July 19.—WEST MIDLANDS G.C.C.: Dudley Room, Queen's Hotel, Birmingham, 2.15 p.m.

July 29.—NORTH THAMES G.C.C.: Westminster City Hall, Charing Cross Road.

We would like to correct the caption to last week's cartoon of the helicopter flight made by the Wales Gas Board in surveying the route of the North Wales gas grid. In actual fact, Mr. T. Mervyn Jones, Chairman of the Wales Gas Board, and Mr. W. T. Hird, Distribution Engineer, made the flight.

The Scottish Gas Board is planning to set up a system of radio communication with its outdoor maintenance workers. This was revealed when the Board's application to erect a steel wireless mast, 55 ft. high, at its headquarters at 15, Calton Hill, Edinburgh, was considered by the Edinburgh Corporation Planning Committee. It was stated that the Board proposed eventually to put up a permanent wireless station with a mast 100 ft. high. Consideration of the application was continued.



Over 70 Pressmen hear how natural gas is found at

CROWBOROUGH WARREN

After three weeks of drilling as part of the Gas Council's first deep-drilling venture in England, natural gas was found at Crowborough, Sussex, on June 23. On the following day Colonel Sir Harold Smith, Chairman of the Gas Council, and Dr. W. D. V. Jones, resident geologist of the D'Arcy Exploration Co., which is in charge of operations, met representatives of the national and technical Press on the site and told them what had been achieved and what was hoped for in the future.

Sir Harold Smith said it was six months since the Gas Council began the search for supplies of natural gas, which would continue over a period of five years. They were not building their hopes on early success too high, for in prospecting of this nature a large amount of exploration work had to be faced. The experience of those engaged in prospecting for *oil* was that the chances of successful borings in a new area, even if all the latest scientific aids are used, could not be rated higher than one in five. So, even if their first efforts did not show very positive results, they would not despair for they had every hope that during the course of the five years, success would come in one area or another.

Reasons for Search

'You may wonder why we consider this search is worthwhile and, indeed, necessary. There were two main reasons for the Gas Council's decision. On the one hand, the price of our basic raw material—coal—had been increasing so rapidly that it was costing us about £25 mill. a year more than it would have at prices ruling when the industry was nationalised in 1949. During the last 12 months the price of coal has risen again, and we are now faced with an extra annual cost of £30 mill. I must emphasise that this is the extra cost due to increases in price and does not include the cost of additional tonnage from the general increase in demand for gas.

'The other factor is the increasing scarcity of good carbonising coals. The gas industry is dependent more than most upon having coal of suitable quality to process, and unfortunately we have every reason to believe that, at the present time, considerable supplies of such coals are being allocated to industries which are unable to convert them into heat with the efficiency of which the gas industry is capable—to say nothing of the question of smoke abatement, on which I do not need to enlarge today.

'The prospecting work is being carried out on our behalf by the D'Arcy Exploration Company, the subsidiary of the Anglo-Iranian Oil Company, which has had many years of experience in all parts of the world in prospecting for oil. This is a process very similar to that of prospecting for natural gas, but it is possible for gas to be found in areas where oil is not present. The Gas Council's decision to invest in this project was based upon a special report supplied by the Anglo-Iranian Oil Company's Chief Geologist, and a sum of £1 mill. has been allocated for the five years search.

'The work which is necessary in the course of the search for natural gas can be divided into two main categories: First, that of preliminary exploration to determine which localities are the most likely to supply natural gas; and secondly, the deep drilling which is necessary in those particular localities to establish the presence or absence of natural gas. It is the second of these processes which is being conducted on the site which you will be visiting this afternoon. Preliminary survey work has already been carried out in this area, and on the basis of that survey the geologists hope for positive results. I may mention that survey work is now being carried on in Yorkshire and Lincolnshire, and we are hoping that it may be possible to select additional drilling sites in those counties on the basis of the reports which will be presented to us. Other counties in the South of England, and in the Midlands, are scheduled for survey work in the near future.

'To return to the deep drilling work at Crowborough. It has been known for many years that in this part of Sussex supplies of natural gas exist—often quite near to the surface. You will, perhaps, have heard of the railway station at Heathfield which was lit by supplies of natural gas for many years. More recently, since our survey work began, people in the area have been recalling the incident of the "burning bog" at Hammerden. We do not expect, however, that at Crowborough we shall find gas so near to the surface. The drilling is planned to go down to a depth of about 2,000 ft. and is unlikely to be completed for some weeks yet.

Previous Drilling

'In this connection, I should perhaps refer to the drilling which has already taken place in Scotland—at Cousland in Midlothian, quite near to Edinburgh. The D'Arcy Exploration Company, when engaged in prospecting for oil in 1938, found that there were reserves of natural gas in the district. At that time it did not seem advisable for the local gas undertaking to take advantage of these supplies, and consequently the well was sealed off. However, knowing that supplies had already been proved in the area, it was agreed that an early part of the Gas Council's search should be carried out there. During the early months of this year, therefore, deep drilling was carried out on a site close to that of the former well. In all frankness, the results obtained from this new well have not been very encouraging, but we did realise that it was necessary to carry out these further tests in order that the true extent of the supply in the Cousland area could be ascertained.

'I would emphasise that the prospecting teams make every effort to cause as little disturbance as possible to the owners and occupiers of the land on which surveys are made. The preliminary geological investigations cause the minimum of disturbance; in fact, those engaged in the work are usually on the site for only a few hours. In a day or two it is almost impossible to say accurately where their activities have been carried out. The farmers and landowners are consulted beforehand; and if there are any particular areas which they are anxious to leave untouched, the surveyors avoid them. The deep drilling obviously has to go on for longer periods; but again, care is taken to avoid any permanent damage to the fields concerned and compensation is paid in respect of occupation of the land and any replacements which are necessary. For example, you will see this afternoon that the good top soil has been bulldozed off the surface and stacked to one side, ready for replacement on completion of the work. If—or perhaps I should say when—we find supplies of natural gas, it is necessary only to have a very small area of, perhaps, a dozen yards square fenced off to house the well head and valve from which supplies can be piped to a gasworks. There the natural gas can be converted, or diluted, to a calorific value suitable for use in the appliances which are a part of practically every household in the country.'

Concluding, Sir Harold said: 'We are all familiar with the remarkable effects that the discovery of natural gas has had upon the national economy of the United States of America, Canada, and more recently the north of Italy. Although we do not anticipate such spectacular results in Britain, the fact remains that if we do find natural gas in substantial quantities, it would have a marked effect upon the economics, not only of our industry, but that of the nation as a whole. The one thing that is certain is that if we don't seek we shan't find.' [And then news of the find.]

This visit to Crowborough Warren provided yet another example of admirable organisation of a party. It may well be that the Gas Council's reputation in that regard is widespread, for we can testify that the seventy odd representatives of the Press made the Charing Cross rendezvous with such punctuality that the whole subsequent proceedings were leisured and thoroughly enjoyable.

Lunch was served at the Roebuck at Wych Cross, where Sir Harold gave his address. Thereafter questions were invited, which were replied to by the Chairman or by Dr. W. D. V. Jones, Geologist to the D'Arcy Company. A full two hours were then spent on the site, where the operations were fully described and a magnificent team seen feeding hundreds of feet of the barrel. The site laboratory was also inspected. Various sound recordings were made—one of Sir Harold while inspecting a shell encrusted block of our ancestry from about 160 mill. years ago.

As a further contribution to the comfort of the visitors, a mobile tea canteen had been laid on; and the return journey to London was broken for refreshments at Croydon Aerodrome. Congratulations to Mr. Reg Hinder and Mr. Charles Elliott, and to the catering firm and others whose compounded efforts made a memorable day for all.

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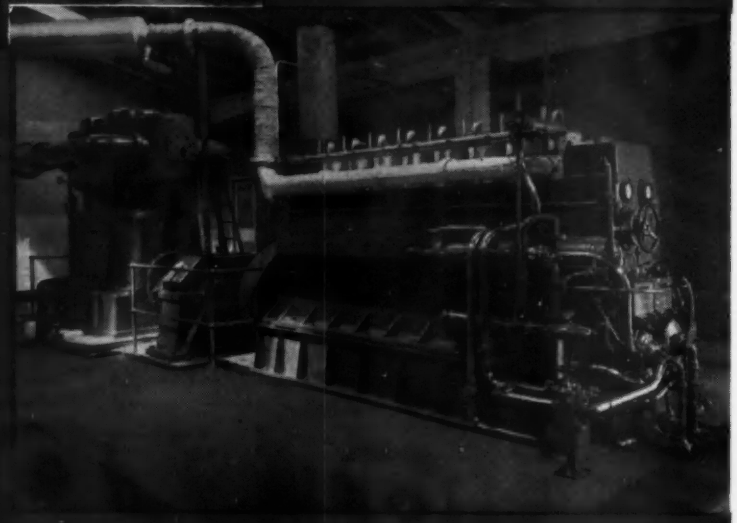
AUTOMATIC CONTROL

OF DIESEL ENGINE DRIVEN GAS COMPRESSORS



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AUTOMATIC CONTROL *of Diesel driven* RELAY GAS COMPRESSORS

In his Institution paper 'The Organisation of the Gas Industry in the South West,' Mr. C. H. Chester, Chairman of the South Western Gas Board, referred to the employment of relay gas compression stations situated at strategic points on the Board's integration system; the stations being entirely automatic in character and capable of running without continuous attendance.

A control device is to be installed in the stations so that immediately the pressure falls below a predetermined minimum, owing to increased demands on the supply system, the relay compressor comes automatically into action to give added pressure to the system; similarly, when the demand for gas is reduced and the pressure on the system rises to a predetermined amount, the compressor shuts down, thereby saving power. The relay compressor is designed to pass on the same volume of gas which is offered to it from the inlet main. and the control is by means of a volumetric governor fitted in the inlet main to the compressor. A suitable non-return valve is fitted between the inlet and outlet mains and the compressor will, to a large extent, be controlled by the amount of gas pumped into the feeder main by the major station producing and transmitting the gas.

The positioning of the relay stations will, of course, be dependent to a very large extent upon the growth of the system; but already stations have been approved at Chipping Sodbury and at Dursley—where gas manufactured in Bristol and Bath will be relayed across the Sharpness railway bridge over the River Severn into the Forest of Dean area—and at Shepton Mallet, to relay gas manufactured at Bath to the Yeovil, Crewkerne, and Chard areas.

Each relay station has two compressors, one diesel-driven and one driven by an electric motor with a variable speed control. Much care has been taken in selecting the best type of equipment for both the electric and the diesel prime movers.

One of the requirements of the diesel engine was that it should automatically start at any position of the crank shaft. This feature necessitated the installation of a multi-cylinder diesel engine, and after consultation with Messrs. Blackstone & Co. a comparatively cheap diesel-driven unit was evolved; but this entailed the introduction of a gear box between engine and compressor. The difficulties of torsional vibrations being carried forward from the diesel to the gear box were overcome by fitting a special damping device in the flywheel of the engine.

Our first picture shows the installation on test at Messrs. Blackstone's works at Stamford. The compressor is manufactured by The Bryan Donkin Co., Ltd., Chesterfield, and is a 10 in. stroke vertical 2-crank double acting, reciprocating type with totally enclosed frame, forced lubrication, water-cooled gas cylinders, unloading gear for automatic starting and standard accessories. It is capable of passing 200,000 cu.ft. of gas per hour at 416 R.P.M. and delivering against an outlet pressure of 30 lb./sq. in.

The driving unit is manufactured by Messrs. Blackstone. It comprises a 'Mark E.R.8' vertical eight cylinder, water-cooled, totally-enclosed, mechanical injection, single acting, four-stroke compression ignition, diesel engine. It is capable of developing 450 B.H.P. at 750 R.P.M. as a 12-hour rating, and is complete with all ancillary equipment and standard accessories.

The transmission system (overleaf) is also manufactured by Messrs. Blackstone, and consists of a 17 in. centres, single helical speed reduction gear unit, having a gear ratio of 1.8 to 1, coupled to the engine by means of a combined flexible coupling and torsional vibration damper and to the compressor by means of a pair of rigid couplings. Only one heavy industrial type flywheel is incorporated in the system, and this is fitted to the diesel engine.

Speed control of the plant is obtained by means of a Bryan-Donkin diaphragm operated governor working in conjunction with a Blackstone servo unit. Full-scale tests have proved that a speed variation of down to less than one-third maximum speed can be obtained satisfactorily.

The diaphragm operated governor uses gas pressure as its operating medium and it is complete with an auxiliary system which incorporates various pilot governors. The pilot governor which is normally in control is of the volumetric type, working in conjunction with an orifice plate inserted in the compressor inlet main, and it ensures that the speed of the plant is automatically adjusted to maintain the delivery of a predetermined constant volume of gas. Apart from this volume control, there are certain over-riding automatic controls which operate as follows:—

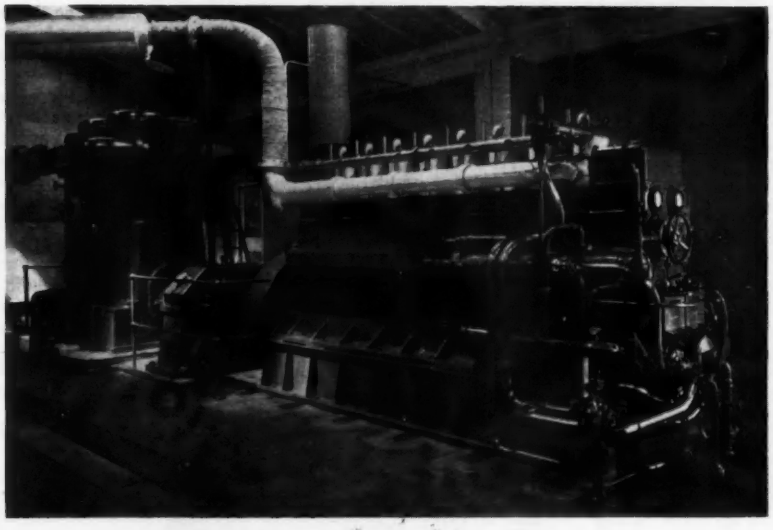
(*a*) A gas pressure operated pilot governor which prevents the outlet pressure from exceeding a predetermined figure, by reducing the speed of the plant.

(*b*) A gas pressure operated pilot governor which prevents the inlet pressure from being reduced below a predetermined figure, again by slowing down the plant.

A further control which can be incorporated is a diaphragm operated differential pressure switch, suitable for working in conjunction with the previously mentioned orifice plate, which automatically stops the plant when the flow falls to a low figure due to controls (*a*) and (*b*).

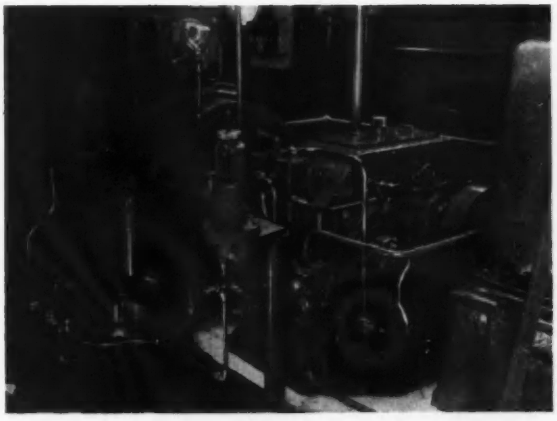
The differential pressure switch will also automatically re-start the plant when the flow reaches a predetermined higher figure. For this purpose a non-return valve is installed in a by-pass across the compressor, and this valve opens to allow gas to pass forward when the pressure on the inlet side of the compressor is higher than on the outlet side.

The plant can also be stopped by means of a Bourdon gauge and relay when the inlet pressure reaches a predetermined



On test at Messrs. Blackstone's Works at Stamford.

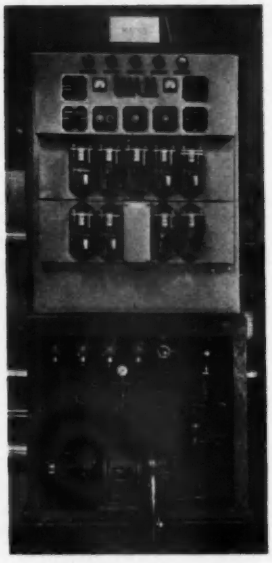
high level and be started again when the inlet pressure falls to a predetermined lower figure. This ensures that the plant is not in operation during periods when compression is unnecessary. An excess pressure valve, adjusted to operate at a slightly higher figure than the pilot governor mentioned under (*a*) is fitted between the compressor inlet and outlet mains, and this acts as an additional safeguard against excessive outlet pressure. Further automatic cut-outs are provided to stop the plant in the event of high engine water temperature and low engine lubricating oil pressure.



Shows gearbox, rubber bonded coupling and nodal damper with the gas governor.

The automatic starting of the plant is performed by means of a Blackstone 'Air Master' control unit which provides alternative push-button or fully automatic control and enables starting to be accomplished from any position of the engine. The starting sequence is as follows:—

(1) On a starting signal being given for any reason, the circuit to a lubricating oil priming pump motor (which works from a battery) is completed, and priming commences.
(2) The circuit to a magnetic valve is completed and the valve opens to allow air to be fed to a servo system which admits fuel to the engine.
(3) When the lubricating oil pressure reaches 25 lb./sq. in., a pressure switch closes, completing the circuit to the coil of an electromagnetic air valve.
(4) The air valve admits to the engine and the engine turns.
(5) When the engine has fired and is up to approximately 90% full speed, a speed sense switch disconnects the air valve and priming pump motor.
(6) At the same time, the engine protecting circuits and alarm systems are selected, and the 'Engine Running' lamp on the control panel is illuminated.

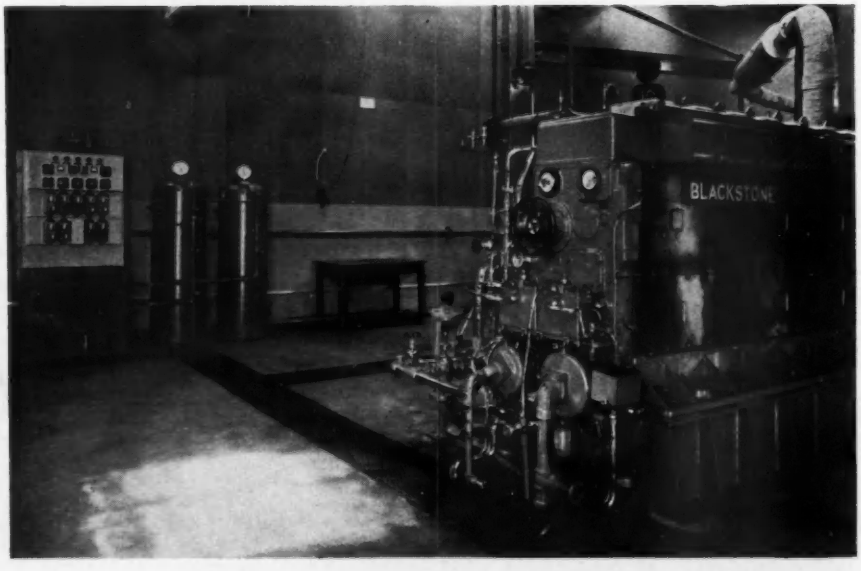


'Air Master' control unit.

If the engine fails to fire within a pre-set adjustable period, the starting signal is cancelled and at the same time the engine 'Locked Out' lamp is illuminated and an alarm given.

Should an engine stopping signal be given either by the control system or the engine protection system, the magnetic valve is disconnected, the air exhausted from the fuel rack servo system, the fuel racks are closed by a control spring, and the engine is stopped. At the same time an engine stopping light is shown; and if the stopping signal has been caused by either high engine water temperature or low engine lubricating oil pressure, the appropriate lamp on the panel is illuminated and an alarm given. An alarm cancellation switch is provided to enable the audible alarm to be silenced while servicing the set, and when this is in the 'off' position a lamp labelled 'Receiving Attention' is illuminated.

The photograph below shows the control end of the diesel engine, also the automatic control panel and compressed air cylinders for automatic starting purposes.



Control end of the engine, and in the background the automatic control panel and air cylinders.

Gas in JAPAN

An Abstract of 'Survey of Utility Gas Industry in Japan,' (April, 1954) issued in English by the Japan Gas Association—by 'ASHTON'

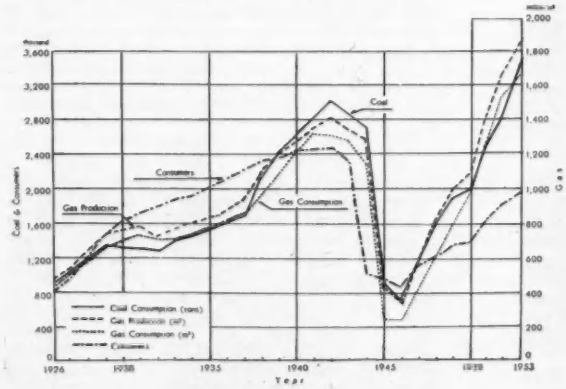
Gas is being supplied by 76 undertakings (with four others projected) to about 200 cities and towns. Of these 11 are municipally controlled, the rest are owned by joint stock companies. There are 162 gasworks in existence of which five are out of commission. Of the town gas in Japan 96% is coal gas mixed with producer gas. The quantity of natural gas and oil gas distributed is insignificant. Demand for gas is concentrated in and around large cities. The six biggest cities supplied by three gas companies consume 82% of the total gas sold.

The first public utility gas undertaking was established in Yokohama in 1872. Gas lighting was first seen in Tokyo in 1874. Development was slow till 1903 when expansion of industry generally following the Russo-Japanese War of 1904-5 contributed to the healthy growth of the gas industry. In 1914, gas companies numbered 88, gas being used chiefly for lighting and power. In this field it was gradually replaced by electricity but for heating purposes the use of gas slowly increased. The industry again began to expand rapidly after 1920, encouraged by the Gas Undertakings Law of 1925, which freed it from 'the fetters of municipal interference.'

'World War II threw the gas industry into a very abnormal condition. Several new companies were established solely for the purpose of supplying gas to armaments production. The gas industry reached its peak in 1942, treating over 3 mill. tons of coal to supply gas to industry with 'tight restriction on domestic consumption.' Under Government recommendation integration was carried to the reduction of 120 undertakings to 75 in number, an arrangement which persisted after the war with beneficial results to the industry.

The gas industry suffered greatly from war damage. The consumption of coal in 1946 dropped to a fourth of that of the peak of 1942 or half of the pre-war rate. The critical shortage of raw materials made recovery slow, but in 1953 the number of consumers approached 80% of the pre-war level while gas production far exceeded it.

Statistics for 1953 show that the gas industry used 3,145,398 tons of coal (including 45,295 tons boiler fuel) and 57,363 tons of oil in the production of 1,941,848,291 m³ of gas (68,577 mill. cu.ft.), including gas purchased and natural gas. Gas supplied was 1,773,266,245 m³ (62,608 mill. cu.ft.) of which 1,041,416,038 m³ (36,758 mill. cu.ft.) went to domestic consumers. The growth of gas production and sales since 1926 is shown in the interesting graph here reproduced.



Gas Industry Statistics, 1926-1953

Coke produced was 2,141,697 tons, of which 1,484,557 tons was sold. Gas making plant installed in 1952 is listed as 645 coke ovens, 109 small chamber ovens, 4,638 horizontal retorts, 44 continuous vertical retorts, 131 producers, and three oil gas plants; 86% of the coke ovens and 76% of the horizontal retorts are reported actually operating. The large gasworks are 'invariably equipped with regular coke ovens, gas producers, and often with coal washing plants. Producer gas made from small coke is now widely used for both underfiring coke ovens and diluting coal gas.' Ammonia (in the form of sulphate) and benzole are recovered in the large works. Liquid purification is practised in several works in combination with oxide boxes; some using the Thylox process with recovery of elemental sulphur.

Ordinary gas coals are used in the smaller works equipped with horizontal retorts, but the larger works with coke ovens used various blends to produce a hard coke for foundry purposes. A typical blend is 50-60% indigenous bituminous high volatile coal, 15-30% low and medium volatile coking coals of indigenous or American origin, 15-30% anthracites of indigenous, Indo-Chinese or African origin. Some of these coals are washed or re-washed at the gasworks to produce coke of high grades. Coal imported in 1953 amounted to 28% of the total delivered to the gasworks; it consisted of low and medium volatile coals from the United States and anthracite from French Indo-China.

Coke from the gasworks is consumed in foundries, water gas plants of the synthetic ammonia and methanol industries, carbide manufacture, the non-ferrous metal and other industries and domestic uses. The total production of coke in Japan in 1953 was 6,911,677 tons (17.6% increase over the previous year) of which the gas industry produced 31%.

The gas industry has now completely recovered from the direct effects of the war and 'gas consumption has increased by leaps and bounds each year' since. The modern tendency is to an increased difference between summer and winter demands, so that the peak load of winter has become a major problem. Oil gas production has begun to attract attention as a possible solution. The Tokyo Gas Company is using several plants of a modified Hall type while Osaka is using gas-oil in modified U.G.I. water gas plant. Calorific value of gas supply was standardised for all undertakings except natural gas at 3,600 cal. per m³ (405 B.Th.U. per cu.ft.). 59% of the total gas supplied is used for household purposes, with 33% to industrial and commercial uses. The best consumers of industrial gas are the glass and machinery industries. It is noted that prepayment meters are not popular among domestic consumers. The supply of natural gas amounts to only 2% of the total.

After several vicissitudes in the organisation of the industry the Japan Gas Association was founded in October, 1947. It is officered by a President, two Vice-Presidents, two Executive Directors, 26 Directors and two Auditors, all elected every two years at a general meeting. All the gas utility undertakings are regular members, while those 'engaged in business relating to the gas industry' are eligible as associated members. It is financed by the annual subscription of members and special charges based on tonnage of coal consumed. Government supervision of gas undertakings is exercised by the Public Utilities Bureau of the Ministry of International Trade and Industry. A national examination is held every year for licensing gas engineers, classified as Class A and B according to the capacity of the works. It is required by law that every gasworks has at least one recognised gas engineer.

Gas prices and accountancy are discussed briefly. Both are standardised. Taxes are levied at the rate of 10% of the monthly gas charge and 20% on appliances as well as minor charges, but these burdens are carried also by the electricity industry. The domestic use of gas is for

cooking, water heating and space heating. The gas refrigerator is not yet popular in Japan.

The Tokyo Gas Company occupies the same sort of commanding position in the Japanese industry as that formerly occupied by the Gas Light and Coke Company in this country. It sells nearly 47% of the total gas distributed in the country. The Company serves a very large area extending the full length of the western shore of Tokyo Bay, including the cities of Tokyo, Yokohama, and Yukosuka, which are connected by high pressure mains operating at pressures of 7-14 lb. per sq. in. with a total length of some 370 miles.

The Survey closes with an interesting section under the title 'Future Trend of the Gas Industry.' The total production of indigenous coal ranges between 40 and 45 mill. tons annually, but of this only 15-20% is of the caking quality suitable for carbonisation. Supplies of caking coal have to be shared with the iron and steel and allied industries for the manufacture of coke. The output of this class of coal from native mines is now definitely inadequate and the gas industry was compelled in 1953 to import 734,720 tons of caking coal.

Coke is becoming more difficult to sell at a profitable price. The synthetic ammonia and methanol industries, hitherto good customers for gasworks coke, are turning from water gas to complete gasification using non-caking coals.

From these two trends—inadequate suitable caking coals and difficulties in the disposal of coke—it is evident that the gas industry cannot depend indefinitely on coal carbonisation alone. The question is asked: 'What steps should the gas industry take in the future?' The answers are, briefly, that carbonisation may continue so long as suitable coals can be imported to supplement indigenous supply, but that coke will have to be produced 'specifically suited to its individual use'; surplus coke will have to be gasified, while new uses and appliances for its use will have to be sought and developed. On the other hand, new sources of gas must be found. Oil gas production will extend, but indigenous petroleum production is scanty. Reliance will be forced on to imports of oil. Petroleum refineries may expand, releasing propane and butane. Natural gas has been found in the country but reserves are small. 'In a far-off future when both suitable coking coals and petroleum products become inaccessible or very difficult to obtain, how shall we have to produce gas?' The Survey suggests that the industry will return to coal, but coals of the lower ranks. 'Complete gasification by means of steam and oxygen must then be the only solution,' operating under pressure with, possibly, methane synthesis over catalysts.

CANADIAN NATURAL GAS DEVELOPMENT

Toronto's industrial, domestic and commercial consumers will start burning natural gas by November 1 this year at about half the cost they have been paying. The Canadian Board of Transport Commissioners, in its first such ruling under new pipeline legislation, this week granted permission to the Trans-Canada Pipeline Company to construct the 85-mile line bringing Louisiana natural gas from Queenston to the Consumers' Gas Company and its 163,000 customers.

Acquisition of the land for the 20-in. line will start immediately and construction as soon as possible, representatives of Canadian Bechtel Co., engineering consultants, said, following the board's decision. They added they were confident the line could be completed by November 1. Within three months from that date all customers in the 13 municipalities in the Greater Toronto Metropolitan area will have been switched to natural gas. The conversion programme, expected to cost 3 mill. dollars, will start on the west side of the city and move across to the east.

With a Trans-Canada gas pipeline scheduled to get under way by next spring, dozens of prairie communities will soon be going through the same experience as Saskatoon, where, in late 1953 natural gas was brought as an experiment. Across the prairies, power officials and consumers are watching the Saskatoon trials. The Saskatchewan Power Corporation, which will distribute all natural gas in the province, says that in Saskatchewan, space-heating will be by far the main load, and that to be profitable there must be a good saturation of the heating load in each city block—five to seven houses per city block is not enough.

INDUSTRIAL BOILER HOUSE EFFICIENCY

'The aim of this work,' says the author in his preface to *Industrial Boiler House Efficiency* (Chas. F. Wade, Crosby Lockwood, 213 pp., 15s. net) 'is not to admonish the works engineer, but to bring the subject in practical shape to a man with many and varied duties, and to the higher grades of boiler-house operator—the front line troops in the battle against waste and for fuel conservation.' It appears to be a good general introduction to the subject, serving well to indicate to the general practitioner when to call in specialist assistance, as suggested in Mr. Wade's analogy. At the same time we think the book could be much improved by a few well-selected references to standard text books and particularly to the relevant British Standard Specifications.

The latter references would be a valuable addition to the chapter on fuels, in which the instructions for sampling and testing, for instance, while reasonable enough in themselves, are not quite the full story or even as much as the works engineer, at all events, might like to know. Still the notes are good and soundly practical. This is followed by short chapters on heat and combustion in which the principles and use of the Orsat apparatus are well set out with a good analysis of test results and their meaning. Furnaces and firing equipment for the shell-type Lancashire boiler are described and discussed. An interesting point is that 'although the simplest system of draught production, a chimney achieves its purpose in a far more expensive way than a fan.' Mr. Wade estimates that mechanical draught and the more complete heat recovery rendered possible by the reduction of gas temperature at chimney base may save £650 worth of fuel per annum in an average single boiler plant. The relative advantages and disadvantages of induced and forced draught and the steam jet are concisely set out.

Firing methods, particularly in the shell type boiler, are discussed in a practical spirit. Two short passages are devoted to liquid and gaseous fuels. The method for the latter is to direct the flame on to a bed of refractory material placed on a standard grate, thus converting the heat to radiation. But gaseous fuel when regularly available requires for its efficient use a boiler specially adapted to it, using turbulent flow in fire tubes of small section.

The chapter on boiler-house instruments is well done, supplemented by a later chapter on records, record keeping, and the working out of results. The treatment of feed water would be greatly improved by references to recent specialised treatises and specifications. We think some of the theories here advanced are not those now generally accepted. The chapter on insulation is good and when it comes to brickwork and settings for the Lancashire type of boiler we hear the voice of a master. The chapter on thermal storage is very good indeed. We think the gasworks engineer might give more attention to this subject than he generally does.

On the whole this is a good little book of its kind. In a future edition some sections might be brought more up to date and a short bibliography should be added including references to those wonderful, inexpensive textbooks, *The Efficient Use of Fuel*, of the Ministry, and *The Efficient Use of Steam*, by Sir Oliver Lyle—big books it is true, but indispensable on the shelves of the works engineer in charge of any considerable amount of boiler plant.

A major oil-gas strike at Roma, about 275 miles west of Brisbane, was reported from Brisbane on June 8 by a *Financial Times* correspondent. Gas was flowing at an estimated rate of 1½ mill. cu.ft. per day. At least three more bores will be necessary to test the extent of the strike. Forced by a pressure of 900 lbs. per sq. in., the gas shot 120 ft. from the end of the escape pipeline.

The 27th International Congress of Industrial Chemistry is to be held in Brussels from September 11 to 19. As in previous years, the programme will include many items in addition to the plenary conferences, such as sectional meetings, visits to works in Belgium's principal industrial centres, and a number of excursions. The Congress will include 29 sections grouped under the following main headings: (1) General problems of the chemical industry; (2) fuels; (3) nuclear science; (4) metallurgy; (5) industrial inorganic chemistry; (6) cements, building materials, glassware, ceramics, enamels; (7) industrial organic chemistry; (8) foodstuffs and agricultural industries; (9) colonial problems; (10) organisation—industrial, commercial and professional. Full particulars of the Congress may be obtained either from the Secrétariat du Comité d'Organisation, 32 Rue Joseph II, Brussels, or from the Commission Permanente d'Organisation des Congres de Chimic Industrielle, 28, Rue Saint Dominique, Paris 7°.

What's New in Mechanical Handling

For the fourth time the science of mechanical handling has been the subject of a major London exhibition. That held at Olympia from June 9-19 was easily the most impressive to date, occupying as it did 14,000 sq. ft. more than the last exhibition in 1952. More than 200 firms exhibited and their products included an extraordinarily wide range of products, including pallets, trucks, cranes, aerial ropeways, overhead conveyors, belt conveyors, elevators, wagon tipplers, winches, and many more besides.

Walking among this wealth of ingenuity was a strange experience, and those of our readers who attended this exhibition will no doubt agree. Many of them took part in the official visit of the I.G.E., London Juniors, Institute of Fuel, Coke Oven Managers' Association, and S.B.G.I., on June 14. They may have seen, as we did, such marvels as a giant mobile crane with jibs nearly reaching the 100 ft. high roof, the new hydraulic loaders operated by drivers without help, the electric tractor with a turning radius of 70 in., and so on.

As before, the exhibition was supported by a convention (or should it be the other way round?) at which 12 papers were read and discussed, and there was also an open forum when a team of experts answered questions on a variety of mechanical handling subjects. A total of 13 films was shown.

In the notes which follow we have attempted to give a brief mention of all those firms whose products are used by the gas industry, and also to select whenever possible those exhibits which were shown for the first time or are at least of comparatively recent origin.

What's New in Conveyors and Tipplers?

A.C.E. Machinery, Ltd., showed an A.C.E. de-breezing screen and one of their smaller type grading screens, together with an electrically operated skip hoist and a rotary tippler, the latter being arranged to handle tubs and to tip in either direction. There were also various geared and friction type winches and an overhead transport. Another exhibit on this stand was a belt conveyor and a rope drum type electrically operated capstan winch, manufactured for export to South Africa.

Ewart Chainbelt & Co., Ltd., exhibited a representative range of malleable iron and fabricated steel chains for elevators, conveyors and power transmission; sprocket wheels and elevator buckets; typical screw-type conveyor spiral; troughing idlers; and a sample of gravity roller conveyor.

In addition there was a series of medium-duty drives in operation, and two working models, one showing a bulk material handling plant, and the other, a sectionalised building with a finger-tray type elevator for packages, feeding to a discharge grid on the upper floor.

Of particular interest among examples of the **Fisher & Ludlow, Ltd.,** range of handling equipment shown was the firm's latest contribution to the practice of conveying—the Fisholow-Hapman tubular conveyor. It is claimed that this system of 'en-masse' conveying has many unique features which should provide the answer to handling problems hitherto considered insoluble. Another item which was shown for the first time was the Flowlink 'Cadet' chain conveyor—a light-duty version of the standard Flowlink.

The rest of the exhibit comprised various types of conveyor; Flowstack pallets; Fisholow unit construction platforms and flooring systems; and the firm's Flowstrut universal slotted angle system.

Portable conveyors were a feature of the exhibit by **C. H. Johnson (Machinery), Ltd.** One type, the 'Hylo-Veyor,' 48 ft. centres, 24 in. wide belt, covers a wide elevation range, with choice of manually or powered hydraulic control. The 'MA' type has 36 ft. centres, 24 in. wide belt, and is controlled by manually operated twin-hydraulic rams.

There was also a Johnson 'Loband' loader, a conveyor of 14 ft. centres, fitted with a hopper both wide and low enough to accept a load of bulk material, coal, coke, sand and gravel, etc., tipped at full speed from a 5 yd. or larger end-tipping vehicle. A combination of this loader and a portable conveyor, provides for the direct transfer of bulk materials in one operation at a rate up to 200 tons/hr.; also shown was a 1 cu.yd. diesel dumper.

A range of electric chain pulley blocks, hand chain blocks, conveyors and cranes was among the exhibits shown by **Geo. W. King, Ltd.** Electric chain pulley blocks exhibited included the 'Matom,' 'Mytemin,' 'Marvex,' and 'Mammoth' models, which have lifting capacities ranging from 200 lb. to 10 ton. There was also the 'Bantam' hand chain block and the 'Pneuglobe' pneumatic chain hoist.

The following overhead conveyors were exhibited: The easy-to-erect 'PCP' light-duty conveyor; the new patented 'Stanrun' conveyor, complete with transfer units; and light and standard type 'Dual Duty' conveyors. Also seen was an overhead 'Supertrack' crane; a light-type overhead 'Kandu' crane; and the 'Safelex' system of track electrification, and other means of current supply.

Mavor & Coulson, Ltd., had on their stand a short belt conveyor running continuously. The driving gear was self-contained, weatherproof and dustproof; the structure was sectional, and the take-up of the belt was adjusted by well-protected screws. For belts ranging in width from 42 to 60 in., there was a unit length of M. & C. 'stringer structure,' which can be easily dismantled into conveniently handled parts. Idlers cut in section explained how grit and moisture are kept out of the bearings, and how these idlers are able to spin at a touch for many years.

An interesting range of conveyors and conveyor equipment was shown on the stand of the **New Conveyor Co., Ltd.** There was a belt conveyor and tripper on an elevated gantry; a totally enclosed chain-and-bucket elevator; three types of roller conveyor; a working exhibit of conveyor idlers and drums; a range of gearboxes; a sectional belt conveyor and driving head; and samples of overhead conveyor chain. There was also a selection of photographs illustrating this firm's installations and equipment.

The Beaumont drag scraper system was featured on the stand of **International Combustion Products, Ltd.,** as an example of the coal-handling activities of the organisation. The No. 3 drag scraper winch which was operating was displayed in conjunction with its associated plant. Operation of the drag scraper system was clearly illustrated by a working model.

Other items displayed and operating on the stand were a 'Tyrock' screen and a 'Vacseal' pump. The pump illustrated its application to the handling of ash, dusts and grits, and, of course, it had the salient feature of requiring no sealing water.

A striking photograph of the Beaumont drag scraper system installed at Rye House generating station of the B.E.A.

A full-size working example of the 'Rotaside' wagon tippler was shown by **Strachan & Henshaw, Ltd.** This tippler was seen handling a 24½-ton capacity mineral wagon. There were also small

scale working models of 'Rotaside,' 'Rotary,' 'Mobile' and 'Light Angler' tipplers, and of Strachan & Henshaw patent dust-trapping equipment for tipplers. Other exhibits included the following: models of the 'Angle' type traversing skip hoist, of 'Beetle' wagon marshalling equipment, and of 'Rock-a-brakes' for wagon control on inclines. There were also photographs of various installations comprising tipplers, transporters, telphers, conveyors, and hoists.

Interesting features of the display by **Richard Sutcliffe, Ltd.**, were industrial three-pulley idlers and impact idlers. The remainder of the exhibits comprised photographs and models of gear-heads, hopper feeders, throw-off carriages and spreader conveyors. This firm recently installed a large belt conveyor plant for handling coke.

A standard range of conveyor drive heads from 3 to 50 h.p. was a feature of the **Hugh Wood & Co., Ltd.**, stand. Also shown were a standard range of belt tail-end screw and pulling jack type; standard sectional conveyor; standard Huwood oil-filled self-lubricating belt idlers, also abrasive-resisting and impact-type idlers. A range of Huwood standard oil-filled drums, instantaneous and bolted couplings, standard 30- and 100-amp plugs and sockets, was included.

Also shown was a model of belt conveyors with sequence control and belt protection, switches as applied to belt operation, and the Huwood pneumatic dustproof pick.

What's New in Cranes and Hoists?

E. Boydell & Co., Ltd., showed two loaders and a shunter. There was also a Muir-Hill LH/1 diesel hydraulic loader for handling bulk materials in confined spaces and having a capacity of 1,200 lb. This has a standard 10.5 cu-ft. capacity bucket, and there are alternative buckets of 14.5 and 6.5 cu.ft. capacities. The turning radius is 7 ft. 6 in. The second loader on show is a Muir-Hill SS cable-operated diesel loader, a heavy-duty machine of good stability and robust construction, with various buckets of ¾ cu. yd. and 1 cu. yd. capacities. The maximum lift is 1 ton over an 11 ft. obstruction.

The shunter was the third Muir-Hill machine. This had a capacity of 200 tons on straight level rails, and was diesel-powered.

The well-known 'Hyaloader' hydraulic loading shovel was an interesting feature on the stand of **W. E. Bray, Ltd.** It has power control of the bucket and attachments which comprise dozer blade, crane, and fork lift that can be interchanged with the bucket. There was also a 'Hydraloader'; a fully mobile hydraulic and wire-rope operated hoist; and an hydraulically-operated fork lift known as the 'Hydrafork.'

A new machine is the crawler-loader-shovel, which is on show for the first time.

The new Bray crawler-loader-shovel in action.

Chaseside Engineering Co., Ltd., showed representative machines from the Chaseside range of mechanical shovels and dumpers, including a ½ cu. yd. 'Hi-Lift' light excavator, a loading shovel of 1 cu. yd. capacity, and one each of the two dumper models available. One dumper was a site model and the other suitable for road work.

Fordson and Perkins engines were featured, and at intervals, the Chaseside Technicolor film was presented.

The impressive Jones KL75 constructional mobile crane.

On the stand of **George Cohen, Sons & Co., Ltd.**, a range of the Jones KL mobile cranes, manufactured by K. & L. Steelfounders & Engineers, Ltd., an associate company of the exhibitors, included the KL15 mobile type with 16-ft. straight channel jib, and the KL22 mobile type with a 16-ft. cantilever lattice jib. Both types are pneumatics but the latter has restrictor type wheels. There was also a KL66 type similar to the KL22 but with a 20-ft. swan-neck lattice jib. An example of a mobile crane on crawler tracks was the KL44 type, fitted with a 50-ft. straight lattice jib and 15/12 cu. ft. capacity double rope grab.

A special new model which aroused great interest was the Jones KL75 constructional mobile crane, with a chassis with outriggers, a 65-ft. lattice jib, 9 ft. 6 in. jury mast extension, and a maximum load rating of 7½ tons.

A variety of materials handling equipment is to be shown on another (gallery) stand. The items comprised examples of roller conveyors, an all-electric single girder overhead crane, a fork lift truck, a telfer hoist, winches, the 'Hoistmaster' electric hoist, and a selection of winches and hydraulic jacks.

The type 'R' mobile crane of 10 tons capacity was one of the features on the **R. H. Neal & Co., Ltd.**, stand. Without jacks or outriggers this is fully mobile with its maximum load, has full-circle slewing and power-operated steering. Another interesting exhibit, the hydraulic lorry loader, which lifts up to 1½ tons at the touch of a lever, was shown fitted to a typical lorry.

The company had also arranged for a sound colour film, showing the manufacture and applications throughout industry of Neal mobile cranes, to be shown on the stand.

A lorry-mounted crane, the Smith 'M.E.,' was exhibited by **Thomas Smith & Sons (Rodley), Ltd.** It is able to travel easily and quickly from site to site and is fitted with a fully revolving superstructure which carries its own diesel power unit, independent of the lorry. This crane is capable of lifting a maximum load of 15 tons at 10 ft. radius when rigged with a 30 ft. boom. The all-welded tubular boom may be extended to a maximum length of 100 ft. by adding additional intermediate 10 ft. sections.

The crane is also capable of excavator duties and will take all the usual front-end equipments, i.e., dragline, shovel, etc. The lorry frame is of specially reinforced steel construction and embodies the crane turret and draw-beam housings. The draw beams are of robust construction, fitted with adjustable jacks, and are extendable to 13 ft. centres.

A completely new range of self-propelled cranes, a new tractor and a new crane truck were shown by **Steel Engineering Products, Ltd.** Among those on show were: The Coles self-propelled crane, Model S.410, with lifting capacity of 3 long tons at 10 ft. radius; Coles self-propelled crane, Model S.710, of lifting capacity 5 long tons at 10 ft. radius; Coles self-propelled crane, Model S.1210, of lifting capacity 10 long tons at 10 ft. radius. There will also be seen: the new Coles 'Electric Eel' industrial tractor, Model 55428, with a normal drawbar pull of 400 lb.; and the new Coles 'Electric Eel' crane truck Model 54920, with 25 cwt. lifting capacity. One of the outstanding exhibits was the Coles 'Colossus' lorry-mounted crane of 92,000 lb. capacity at 12 ft. radius.

The Coles 'Colossus' lorry-mounted crane.

F. Taylor & Sons (Manchester), Ltd., showed Taylor 'Jumbo' highly mobile cranes of from 2 to 6 tons capacity, which were all hydraulically operated, lifting in line and slewing, and designed for either two- or four-wheeled driving. The cranes shown were designed to operate hydraulic grabs etc.

What's New in Lifting Trucks?

New machines shown by **Crone & Taylor (Engineering), Ltd.,** included the 'Meteor' thrower, a special-purpose granular materials-handling machine for packing the holds of ships and for stockpiling operations. It is able to load granular materials such as sugar into locations which cannot be reached by normal grab loading methods, such as between decks. Other machines included the new Crone & Taylor 'Walrus' loader for transferring loads from tipping lorries to stackers, the new C. & T. 8 ft. Tallboy' lorry loader, and the new C. & T. 25 ft. light tubular stacker.

The 40 ft. × 24 in. 'Super Mobile' stacker with hydraulic height adjustment, swivelling wheels for radial traversing, and brakes, can be towed 200 miles per day. Another exhibit was a 25 ft. C. & T. mobile package stacker.

A new exhibit by **Power Jacks, Ltd.,** was a system of hydraulic clamps, comprising a hand pump and a number of hydraulically operated plungers, adaptable to all types of work-holding applications.

In addition to the company's complete range of hydraulic pumps, jacks and valves, hand or power operated, an item of special interest was the system of synchronised jacks on a common circuit designed to extend at an equal rate regardless of the load on each jack. A Newton 10 cwt. capacity 'Hydratruck' included in the exhibit had a lifting range from 7 in. to 4 ft. 8 in.

Specialists in battery trucks, **Ransomes, Sims & Jefferies, Ltd.,** featured this type of product heavily on their stand. The fork lift trucks included were the FL40 with a capacity of 2 tons at 18 in. load centres, maximum lift of 10 ft., with side shift attachment; a similar 1 ton capacity truck; and the FL10 high free-lift type with a maximum lift of 10 ft., free lift of 4 ft. 10¾ in.

Other units shown were the H25 electric 'Runabout' crane with capacity of 25 cwt. at a radius of 12 ft. 9 in.; the 2 ton ENU8 elevating platform truck; the NU crane truck; the 6/10 on capacity type T4 tractor; and the type TE tractor of 20/30 cwt. capacity.

What's New among the other Exhibits?

The **British Thomson-Houston Co., Ltd.,** exhibited electric plant and apparatus for application to all kinds of mechanical handling equipment. In addition to electric motors from fractional horsepower sizes upwards, there were displays of industrial electric control gear, electro-hydraulic thrustors, and typical applications of electronic equipment for the automatic and accurate control of industrial processes. Many of the exhibits were shown as working demonstrations.

One of the interesting features was the number of exhibits showing the practical application of BTH electric equipment to cranes and lifts. Among these may be mentioned a working model of a 15/20 ton overhead crane operated by BTH crane control equipment of the latest design; a 66/2.3 h.p., 1,050/38 r.p.m. variable-speed A.C. commutator motor and associated control gear (operating) for a dockside crane in India; and a 4 h.p. 950 r.p.m. 'Amplo' lift motor together with enlarged diagrams showing typical characteristic curves of the machine. Another exhibit of interest was a demonstration of the BTH patented scheme for automatic protection in the event of a break in an overhead supply wire of a travelling crane.

Thrustors of various sizes were also being shown, one being demonstrated with a 'Perspex' oil tank to illustrate the simple, but effective, operation under actual working conditions.

Belting of many types, washers, gaskets vibration insulators, and other rubber products were featured by the **British Tyre & Rubber Co., Ltd.** The conveyor belting included types for surface applications, and fire-resistant belting for coal mines. Also shown were examples of sand, gravel, chemical and industrial hose, and auxiliary ventilation hose for coal mines.

Saml. Denison & Son, Ltd., demonstrated the 'Blake-Denison' totalising weigher for belt conveyors, etc., with a suspended weigher for use on crane hooks.

Fractional horse-power motors, industrial motors, industrial hand driers, and electrically operated actuators were all displayed and demonstrated the very wide range of products made by the **English Electric Co., Ltd.** Another important feature was a system of boiler damper operation incorporating 'English Electric' linear actuators. The 'Magamp' control motor unit and 'Magamp' motor controller were both on view and demonstrated how it is possible to obtain all the advantages of a D.C. motor, with both forward and reverse speed control, from an alternating current supply.

The simplified 3 h.p. controller shown was a comparatively inexpensive equipment suitable for a wide range of industrial applications.

Applicable to the grading of materials such as coke, coal, ores and gravel, the 'Consort' reciprocating screen shown by **W. J. Jenkins & Co., Ltd.,** with its new features of design and construction, was available for inspection on their stand. Another exhibit was the 'Viking' vibratory screen—a high speed unit of new design for fine screening of materials, particularly for debreezing and guard screening of coke.

Other items which represented the firm's products was a model of a mechanical roller grate for use in static gas producers to eliminate manual clinkering and give lower fuel consumption, and conveyor components—including idlers, drag bar, scraper, gravity and lip bucket chains.

The compactness and suitability of L.D.C. motors and geared units for driving mechanical handling plant were displayed by means of a specially arranged working exhibit on the stand of the **Lancashire Dynamo Group.** Also shown were some of the many applications of electronic equipment to mechanical handling problems. Other exhibits were included and there was a staff of qualified engineers on the stand to discuss all aspects of the application of electrical equipment to mechanical handling.

The usual wide variety of products was displayed by the **Rawlplug Co., Ltd.,** and we can do little more than list some of the main items: Rawlplugs for firm screw fixings in all solid materials; Rawlbolts for heavy-duty bolt fixings; Rawlnuts, Rawlanchors, and toggles for fixings in thin and hollow materials; Rawlties, Rawloops, and Rawlhangers for concrete formwork; Rawldrills, Stardrills, tubular and long wall boring tools for manual operation; attachments for converting electric drills into percussion hammers; tools for electric and pneumatic operation; durium, new process, carbide-tipped drills for rotary hole boring; and slow speed, high torque, electric drills.

Comprehensive range of pallets and stillages for use in various trades and to suit various types of mechanical lifting and transport appliances, were exhibited by **Rubery Owen & Co., Ltd.** The pallets were constructed from rolled or pressed sections, round or square tubes. The materials used included steel, light alloy, wire mesh, timber, hardboard or combination of these materials, all welded, hot or cold riveted. Other exhibits were special range of K/D pallets for export purposes, work pans, tote boxes and stack pans, and steel office furniture, steel shelving, racks, cupboards and lockers.

Southend Essay Prizes

As a sequel to the celebrations held earlier this year by the North Thames Gas Board to mark the centenary of the introduction of gas into Southend-on-Sea, the Board organised an essay competition among local schoolchildren. Subjects for the essays were: (a) The history of the gas industry; (b) gas in Southend; and (c) the effect of the gas industry on the way people live.

The competition was a huge success, over 1,000 entries from 23 schools being submitted. In view of the diversity of ages of the essayists, it was decided not to select, as was originally intended, the best three entries for prizes, but to give smaller prizes to the best from each school, the number of prizes being in proportion to the number of essays submitted from each particular school.

About 140 Southend schoolchildren appeared in the prize list and on June 1 a mass presentation was made to them at the Municipal College in Southend by Mrs. H. N. Bride, wife of Councillor Bride, Mayor of Southend, who also graced the occasion with his presence. Also present were many local civic dignitaries and educational authorities.

Displayed around the hall were many of the visual aids offered by the North Thames Gas Board on free loan to teachers at schools in the area. These displays include careers in the industry, by-products, manufacture of gas, health and hygiene, and how to use various gas appliances. There was also on display a working model of a gasworks made by one of the local schools.

To wind up the evening, the Board's new film 'North of the Thames,' a 20-minute documentary showing the varied and various uses of gas in the home, factory and restaurant, and the service behind the Board's organisation, was shown for the first time in public.

FAULTLESS PERFORMANCE

FLAWLESS APPEARANCE...

As the expert diver's faultless performance and flawless appearance delight the critical spectators, so the faultless performance and flawless appearance of the Century Cooker delight the critical housewife . . . as perfect diving is the result of years of training and practice so the Century is the result of R. & A. Main's years of experiment and research.

Always to the forefront in improving the efficiency of the gas cooker, R. & A. Main Ltd. have been "first in the field" with many outstanding features . . . in 1922 Main introduced the simplified form of cooker construction . . . in 1927 Main were first with an all-enamelled cooker . . . and in 1935 Main introduced the first all-sheet metal cooker.

The No. 20 Cooker was the first chassis-less model to be produced and marketed in Britain, and it was also the first cooker to incorporate an oven-flue vent discharging in front of the backplate. The high efficiency and popularity of the Century has indeed proved the worth of Main's years of constant research.

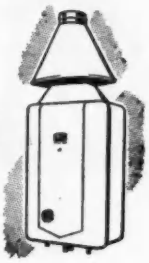
MAIN No. 20 CENTURY GAS COOKER

C2

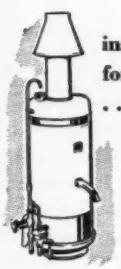
Note the name-made by MAIN

R. & A. MAIN LIMITED
LONDON and FALKIRK

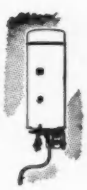
there is a MAIN water heater for every domestic purpose . . .



instantaneous for a complete household service . . . the M.I. Multipoint



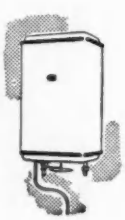
instantaneous for the bath . . . the New Junior



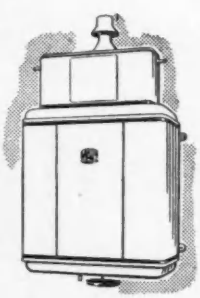
instantaneous for the sink . . . the Pronto

instantaneous or storage

for a complete household service . . . the G.L.C. Circulator



storage for the sink or lavatory basin . . . the Thermain No. 2



storage for a complete household service . . . the Thermain No. 15

MAIN WATER HEATERS Ltd.
Gothic Works, Thornton Rd., Croydon, Surrey.
W5

A luxury *all* can afford

The Paravector Gas Convector Heater is most efficient and economical and is £££'s cheaper than any other gas heater. Designed as a portable or fixed unit with non-aerated burners, a small constant pressure governor and fixed restrictor control. As a portable appliance the consumption is 6,000 B.T.U.'s per hour and as a fixed unit 8,000 B.T.U.'s per hour. Samples and price available now. Ample supplies for the heating season. Overall dimensions: height 30″, depth 11¾″, width 19″. Finish: attractive hammered golden bronze with brown stove enamelled grille.

PARKINSON

PARAVECTOR

ANOTHER HIGH QUALITY GAS APPLIANCE BY THE MAKERS OF THE FAMOUS **RENOWN** AND **PARAGON** COOKERS.

THE PARKINSON STOVE CO. LTD., STECHFORD, BIRMINGHAM 33 *A member of the Parkinson & Cowan Group*

Under New Management

Brooklands Technical College at Weybridge, Surrey, has been described before in the 'JOURNAL' as having an atmosphere conducive to relaxed study. The first two highly successful courses in management, run by the Institution of Gas Engineers, provided the students with the advantage of close association, living as they did as a small community in this beautiful modern building which stands within its own spacious grounds.

Following a recent announcement that the Gas Council would itself continue to run and finance the residential management courses at Brooklands Technical College previously held by the Institution, the first Gas Council-sponsored course was opened on June 15. The first two courses were financed from the Woodall-Duckham Scholarship Fund.

In the new series, the courses will last for six weeks and will cover both management and general subjects. The pattern of the previous two courses is being retained, the only difference being that, whereas previous courses were confined to gas engineers, in future, men from other branches of the industry will be included.

'Rather Unique'

The object, says the Gas Council, is to provide the course for students who have already shown aptitude in accepting a measure of managerial responsibility and would benefit from further education in management subjects.

Opening the course, Mr. W. Robson Brown, M.P., Chairman of the Board of Governors of the College, and Mr. H. F. H. Jones, Deputy Chairman of the Gas Council, welcomed 15 students from all parts of the country.

In an informal talk to the students, Mr. Robson Brown said the College was proud to have this association with the gas industry in 'these rather unique courses.'

Essential Features

Dealing briefly with the three essential features of the course, he said, firstly, it brought men together—men of different viewpoint and different experience in a great industry. Secondly, the staff of the College had no desire to *tell* the students anything. They were specially selected for their ability to put over material, to set students thinking for themselves. Thirdly, specialists from the gas industry, men specially qualified in their different spheres, would tell the students of the work and problems of its various branches. With these three aspects in mind, the College tried to strike a balance and sustain interest throughout the course. And he hoped that, when they left, they would go away with 15 really good friendships established—for that was most important.

A Yardstick

Making a few 'philosophical observations,' Mr. Robson Brown said much had been written on the question of training for management. But no method was ideal because management—and he was referring to personal, human management—was a subject that could not easily be taught.

'Management,' he declared, 'is a state of mind, a set of moral values; it is the yardstick by which you assess other people and other people assess you. What you are here for is to see how you can get the best out of your own talents and get the best from your men.'

Mr. Henry Jones said that, but for his absence in another part of the country, the Chairman of the Gas Council, Colonel Sir Harold Smith, would have been present. He would visit Brooklands during the period of the course. Speaking in his capacity as Junior Vice-President of the Institution of Gas Engineers, Mr. Jones said how sorry were Mr. W. K. Tate, the new President of the Institution, and Mr. J. H. Dyde, Chairman of the Education Committee, that they were unable to be present.

Mr. Jones agreed with Mr. Robson Brown that a good manager must have the proper characteristics within him. But he would make a better manager if he studied the subject and discussed it with others. By so doing, he would benefit from the collective experience. This course provided the students with an opportunity for study and discussion of management problems.

The lectures and other activities are under the headings of self-expression and committee procedure, management studies, the practical application of management principles, industrial relations and external relations, and technological studies.

In addition there are visits to an exhibition, a typical industrial plant, Watson House centre, and the Houses of Parliament. Lastly, the students make case studies and give lectures.

Mr. H. F. H. Jones will deliver the valedictory address at the close of the course.

These are the fifteen students from all parts of the gas industry who are attending the first residential course in management at Brooklands Technical College to be run by the Gas Council.

IMPERIAL CONTINENTAL GAS ASSOCIATION

Following the summary of results published in the 'JOURNAL' of June 9 (p. 642), we now give details of the activities of the chief subsidiaries of the Imperial Continental Gas Association released with the report and accounts for the year ended March 31, 1954. Sir George Jessel, BART., M.C., is Chairman.

In spite of continued competition from petroleum gases, gas and electricity sales in Belgium again increased in the aggregate. The deterioration in the coke market continued with the result that the profits of the Cokeries du Brabant showed a steep decline. Owing to this decline and to an increased dividend distribution by Contibel, the profits retained by the Association's Belgian group of companies were considerably less than in the previous year.

French Compensation

With regard to the compensation for the Association's holdings in French nationalised undertakings, there is a credit balance of £115,355 which is being carried in the Association's accounts as a provision for exchange guarantee payments still to be made.

The Association has purchased 100,000 common shares of Gatineau Power Company which operates in the Canadian Provinces of Quebec, Ontario and New Brunswick. Shareholdings in Ewart & Son, Ltd., and Hamer-Porter Paints, Ltd., have been sold. A sum of £30,000 has been provided out of the year's profits to cover a subvention to British Sewing Machines, Ltd., which made a loss.

During the year a settlement was arrived at in respect of the liability to the Excess Profits Levy for the period January 1, 1952, to March 31, 1953, and resulted in a substantial surplus being realised on the provision made in the accounts of the two previous financial years. Mainly on this account a sum of £110,000 has been carried to the credit of profit and loss account, of which the directors have applied £100,000 to replace the equivalent sum withdrawn from general reserve last year.

Belgian Subsidiaries

Of the Belgian subsidiary companies, Compagnie Belge et Continentale de Gaz et d'Electricité (Contibel) showed a slightly reduced profit of frs. 65,567,029 for the year ended March 31, 1954, owing to the absence of a dividend from the Cokeries du Brabant. The Board of Contibel decided, however, that the financial position of its associated companies justified a lower allocation to reserves than in recent years. An increased dividend was accordingly paid at the rate of frs. 60 per share against frs. 20 for 1952-53.

For the year ended December 31, 1953, the Antwerpse Gasmaatschappij paid a dividend at the rate of frs. 115 per share, which is the same rate as for the previous year. Sales of gas increased during 1953 by 2.3%, the increase being almost entirely in the industrial field. Sales for domestic purposes were practically unchanged. The number of consumers showed an increase of 3,700, while new gas mains were laid for a length of 18.6 miles.

Electricité et Gaz de l'Agglomeration Bruxelloise (Electrogaz) paid a dividend at the rate of frs. 95 per share as against frs. 90 for the previous year. The dividend absorbed frs. 46,455,000. Sales of gas and electricity increased by 1.2% and 4.1% respectively. New gas mains were laid during the year for a length of 2.8 miles. The number of gas consumers increased by 2,811.

More Gas Consumers

After charging frs. 51,186,602 for depreciation and allocating frs. 3,106,000 to legal and extraordinary reserves, Société Provinciale du Gaz et de l'Electricité (Provinciale) paid a dividend for the year at the rate of frs. 75 per share, this being the same rate as for the previous year. Gas and electricity sales increased by 1.3% and 1.2% respectively. The number of consumers of gas increased by 2,762 and the network of gas mains was extended by 16.5 miles. Sales of butane in country districts showed a substantial increase.

The financial year of the Compagnie Nationale d'Eclairage having been changed to end on December 31 instead of April 30, the last accounts cover the eight months ended December 31, 1953. Dividend for this period was frs. 33.35 per preferred share and frs. 140 per ordinary share, compared with frs. 50 and frs. 250 respectively for the year ended April 30, 1953. Sales of gas were maintained, while electricity sales rose by 2.5%. The policy of replacing coal gas with propane-air was continued, the change having been made during 1953 at Dinant.

The falling off in the demand for coke having become more pronounced, the Board of the Cokeries du Brabant decided to curtail production as from May, 1953, by closing down 20 ovens, thus reducing the daily throughput of coal at Pont-Brûlé from 1,200 to 850 tons. The selling price of coke continued to fall throughout the year. In these circumstances, after frs. 16,612,096 had been charged for depreciation and frs. 250,000 placed to legal reserve, the balance of profit for the year, amounting to frs. 4,878,699, was carried forward.

Belcomin, which is a holding company of shares in Belgian undertakings which are not of a public utility nature, showed a profit of frs. 6,127,468 for the year ended March 31, 1954.

Compagnie Continentale d'Appareils de Mesure (Contimeter), manufacturers of gas, electricity and water meters and of gas water heaters, paid a dividend for the year ended March 31, 1953, at the rate of frs. 375 per share, this being the same rate as for the previous year. The Company made successful efforts to develop and extend its overseas markets.

Matériel et Appareillage pour le Gaz, l'Electricité et le Coke (Magec), retailers of domestic appliances and of catering equipment, met with severe competition during the year, based on price-cutting, and its turnover and profits suffered accordingly. The Company distributed a sum of frs. 3 mill. as dividend at the rate of frs. 100 per share as against frs. 205.71 for the previous year.

British Subsidiaries

Turning to British subsidiary companies, the report says that although the turnover of James Stott and Company (Engineers), Ltd., manufacturers of catering equipment, for the year ended December 31, 1953, again showed an increase over that for the previous year, trading profits were slightly lower. The cost of materials remained reasonably steady, but it was considered undesirable to raise prices to take account of the wage increases granted in November, 1952. The cost of production was also affected, and expansion hindered, by the continued difficulty in recruiting the categories of labour required. A defence priority contract placed with the Company in 1951 was completed. Sales in overseas markets showed a slight decline.

Stotts again completed a number of important canteen installations. A successful future is anticipated for several new appliances which were produced. After charging £13,756 for depreciation and providing £33,757 for taxation, the net profit amounted to £19,017 from which a dividend was paid at the rate of £6 10s. (*less* tax) per share, this being the same rate as for the previous year.

Switchgear for Jersey Gasworks

The switchgear at the works of the Jersey Gas Light Company, which was opened on June 4, was supplied by Erskine, Heap & Co., Ltd., Manchester. It consisted of an Ironclad switchboard comprising a combination of OS.22 type, heavy duty vertical isolation circuit breakers, together with high rupturing capacity switch fuse units.

The first two panels on the switchboard each control one 156.25 kVA alternator, synchronising equipment being provided on a swinging panel for synchronising these two alternators, panels 3, 4, 5 and 6 being outgoing feeder panels. Three ammeters are mounted on the busbar chamber of each panel to give readings in each phase. Power factory meter, kilowatt hour meter and earth leakage indicator were also mounted on the switchboard.

Separate were two exciter cubicles on which were mounted automatic voltage regulators controlling the two alternators and the exciter field hand regulator equipment, together with exciter ammeter for reading the exciter current.

Alleged Air Pollution

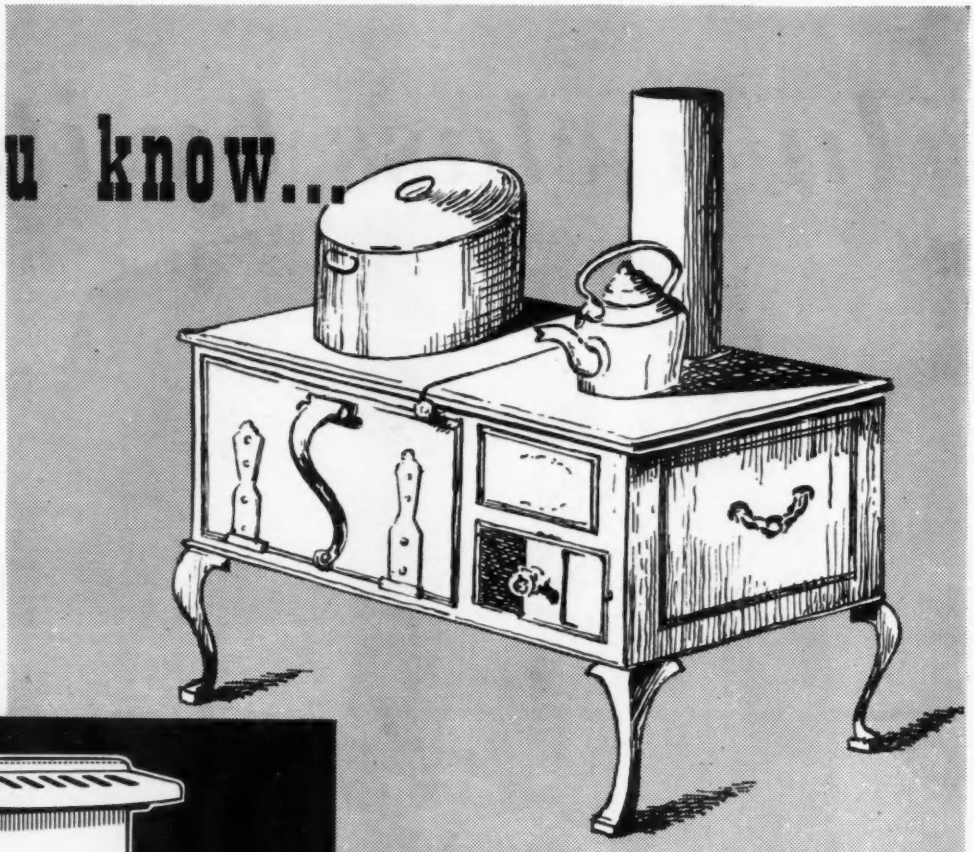
Newcastle Corporation Health Committee decided at its meeting on June 14 to serve statutory notice on the Northern Gas Board to stop atmospheric pollution from a chimney at their by-products works at St. Anthony's in the Newcastle Division.

The Committee was informed that in reply to a complaint that the chimney was emitting black smoke, the Board had stated that the reason for this was that raw coal was being used and the boiler fires had just been cleaned and the fires were being built up.

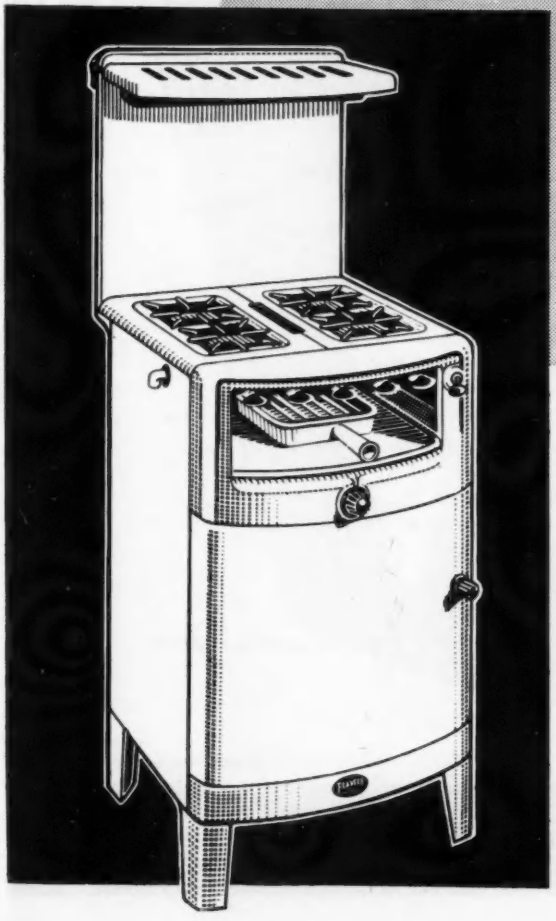
'While admitting that it is difficult in these circumstances to avoid a nuisance it is not impossible and every endeavour will be made to avoid a repetition,' the letter stated. The Committee decided that the Board should be given three months' notice to stop the pollution and if there is a repetition the question of prosecution will be considered.

During April there was an average deposit of 118 tons of matter per square mile on Newcastle as a result of atmospheric pollution. The Beaver Committee, which is studying the question of air pollution, is to be invited to visit Newcastle.

Do you know...



. . . . that one of the first portable cooking stoves was manufactured by Flavels. A newspaper in the year 1859, referring to this stove, stated "*We feel bound too, to notice a most conveniently arranged portable Kitchener, mounted on legs, which can be used in any room of the house by attaching a pipe to it.*"



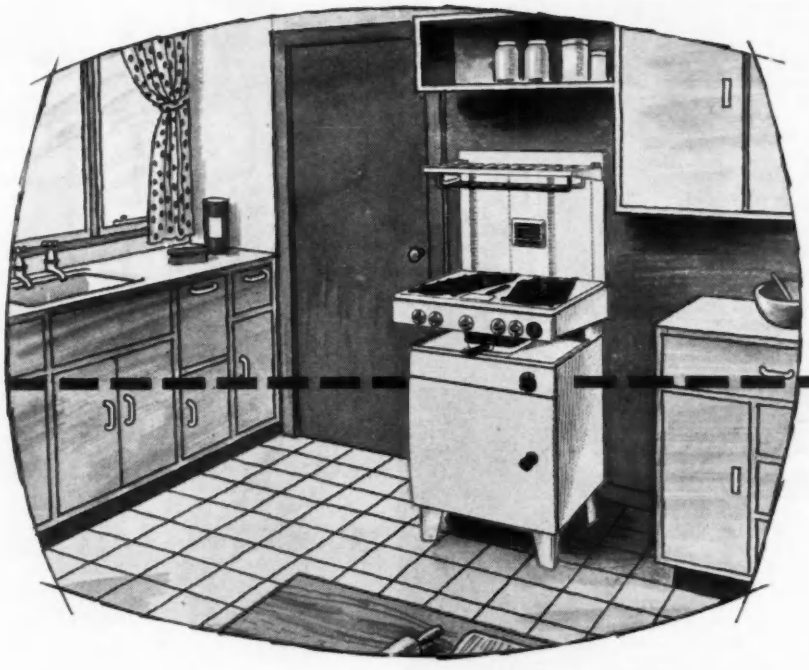
. . . to-day the pride of the kitchen is the Flavel '68'

This medium priced bow-front cooker has caught the attention of the observant housewife. She likes the attractive and durable finish, the larger than usual oven, and the fast efficient hot plate —Yes,there's every satisfaction in selling the '68'!

FLAVELS of LEAMINGTON

Makers of Fine Cooking and Heating Appliances since 1777

In a class by itself



When a thing looks right it usually is right,
and that goes for the NEW WORLD EIGHTY FOUR

The NEW WORLD EIGHTY FOUR is designed for the job—handsome without frills, with nothing to go wrong—and beautifully made, it is a cooker you can particularly recommend to those of your customers who really *do* appreciate quality.

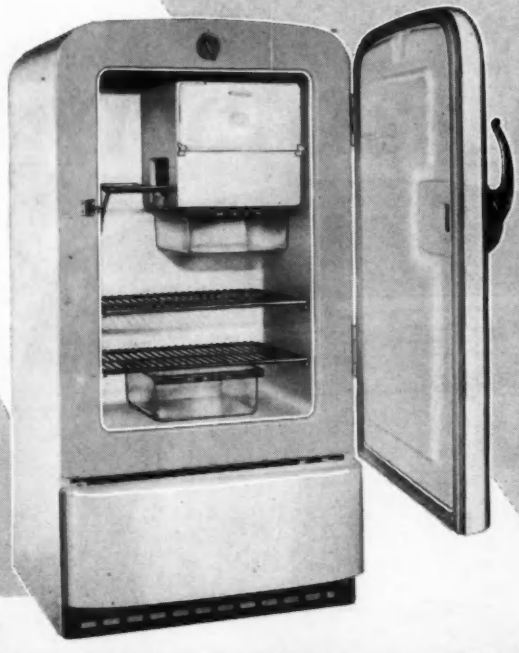
Now available in white, in addition to two tone cream and green and cream.

Radiation Group Sales Ltd.,

NEW WORLD NEW WORLD NEW WORLD

7 Stratford Place, London, W.1 Te'ephone: MAYfair 6462

NEW WORLD NEW WORLD NEW WORLD



Guaranteed for 10 years

Features of the Main Refrigerator include ample storage space, a larger than usual frozen-food compartment and superior finish. An absorption-type model, it is silent in operation and cannot cause interference to radio or television reception. Attractive appearance with white enamelled cabinet and vitreous enamelled interior. Gross capacity 3.2 cubic feet. Frozen-food storage locker holds about 4lbs. of quick-frozen food and 2lbs. of ice. The cabinet and accessories (except plastic dishes) are guaranteed for ONE YEAR and the sealed cooling unit for TEN YEARS.

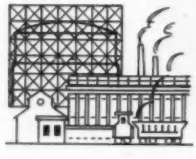
The MAIN 32 REFRIGERATOR

MAIN REFRIGERATION LTD., GOTHIC WORKS, EDMONTON, N.18

Note the name-made by MAIN

R 6

Cochranes SPUN IRON PIPES & FLEXIBLE JOINTS



Screwed-Gland Flexible Joints: up to 10" diameter

Bolted-Gland Flexible Joints: 12" and above

Cochranes (Middlesbro') Foundry Limited, Middlesbrough

Nalgo and Gas Staffs

A Year of Good, Hard Work

The annual conference of the National and Local Government Officers' Association opened on June 15 at Scarborough, when the Mayor of Scarborough welcomed the 1,500 delegates representing NALGO's 225,000 members. On the previous evening, delegates had attended a civic reception given by the Mayor. On June 14, Mr. George Newman, the Association's Organising Officer for Gas Staffs, addressed a meeting of delegates representing members in the gas industry, at the Olympia Ballroom.

Mr. Newman said the past year had been a period of good, hard work. District and national sub-committees had functioned well and covered much ground. The staff side had been busy considering a wide variety of matters. The national and area councils had operated satisfactorily. The work of the National Joint Council was not spectacular. Indeed, one would hardly wish it to be so. There appeared, however, to be a reluctance on the part of the Gas Council to enter into new agreements covering the service conditions of gas staffs, or even to amend the existing agreements.

Salary Reviews

Thus, efforts to amend the salary agreement with which there was serious dissatisfaction among gas staffs, had not met with any success to date. Nor could any agreement be reached on a uniform method of dealing with staff performing the duties of a higher-graded employee, although area boards claimed to be dealing reasonably with this type of case.

Under the Gas Act, area boards were given a large degree of autonomy. This decentralisation had generally been approved and had enabled boards to develop their own organisation and service to suit the needs and potentialities of their districts. But, clearly, the staffs of a national industry could not be dealt with on an area basis, according to the outlook of each board. The national negotiating machinery was set up expressly to decide the conditions of service of staffs in the industry. The Association, therefore, would have to resist any endeavour on the employers' side to pass back to area boards responsibility for deciding how to treat their staffs.

Again this year, the National Council had to deal with a claim for salary increases. They all knew the result—increases of between £10 to £25. They were all aware that a special conference in April decided that NALGO should seek a review of existing salary scales and structure in every service, and this was the big task now facing them. The National Service Conditions Sub-Committee would start that process within the next fortnight.

Equal Pay

Two recent developments must affect the position. One was the decision of the Government to make a start with the application of equal pay for equal work in the Civil Service. In the words of the secretary of the staff side of the Civil Service National Whitley Council 'it is a very happy thought that victory should have come from the culminating effect of the three organisations for public servants acting in close collaboration'—the Civil Service unions, the National Union of Teachers, and NALGO. There was no reason why the Gas Council should not also begin to apply equal pay.

The second development was the decision of the N.J.I.C. on May 27 to award a further 1½d. an hour to manual workers, making a total of 2½d. an hour more than their rates a year ago. Both developments would be examined by the Service Conditions Sub-Committee. The Association's negotiators would continue to press their claims with every endeavour and speed. NALGO held the joint secretaryship in each of the three negotiating bodies—the National Joint Council for staffs, the Senior Officers' Joint Council, and the Joint Standing Committee for intermediate grades. It was the only organisation represented on all three bodies.

Pension Committee

Another body to which the Association made a valuable contribution was the Joint Pension Committee. At the moment, it was trying to persuade the Minister to help the ex-company pensioners and to make provisions similar to those of the Local Government Superannuation Act, 1953, available to ex-municipal gas staffs with protected pension rights under the 19379 Act, although so far without success. They were grateful to the Gas Council for extending the period of option in some cases until the end of June.

Relations with the Gas Council and area boards continued to be cordial and co-operative. The sound personal relationships which had been built up nationally and in the areas contributed to the general wellbeing of the industry. They continued to have friendly relations with the other organisations concerned with gas staffs, and on the staff side they worked together reasonably well. There was no great disunity among gas staffs, as some people would have them believe, other than that they were mainly split between two organisations. Membership continued to grow and branches became stronger and more active. Their target was to make NALGO as supreme for its members in the gas industry as it was in its other fields.

They applauded the endeavours of the industry towards greater efficiency and productivity. The continuing rise in the price of coal and the unreasonable price differentials imposed on the gas industry made it essential for it to lessen its dependence on coal. They must congratulate the Gas Council on its decision to search for natural gas. It was heartening that a nationalised industry, in its early years, had the courage to go forward in that way. The talk of atomic energy had acted as a challenge to the industry.

One read of efforts to obtain gas from other sources, such as the draining of methane from coal workings, and the gasification of heavy oil. Orthodox processes were being re-examined and improvements effected in efficiency and productivity. Colleagues in the North West had set everybody talking about the 'Rochdale' process. The Gas Gallery at the Science Museum, Kensington, was a credit to the industry and would be of permanent interest to students and the public generally.

All these developments indicated the spirit of endeavour and initiative which prevailed in the industry today. All gas staffs surely supported those activities, since their interests were bound up in the prosperity of the industry. There would, of course, be problems to be faced. Re-organisation and redundancy were already with them in some places. It might be that significant developments or changes in the industry would lead them into greater problems. But they would face them and solve them as they had done before.

He did not personally consider that trade unions would strengthen their position by having employee representation on area boards; in fact, he believed the contrary effect would obtain. It was the job of area boards, not of NALGO, to accept and discharge the responsibility of management. It was the job of NALGO to look after and promote the interests of its members, and to seek to maintain and improve the interests and status of the services in which they were engaged. That did not mean, however, that NALGO and its members did not make an effective contribution to the wellbeing and progress of the industry. Every encouragement was given to the individual member to use opportunities which were provided at branch, district, and national level to enable him to become a more valuable member of the industry. Employees and organisations could make their most effective contribution to the efficiency and progress of the industry through joint consultation.

The Association supported every effort to make joint consultation worthwhile. The whole personnel of the industry, including members of area boards, must work together as a team or partnership. He appealed to area boards and management generally to realise that, if they adopted joint consultation, enthusiastically and sincerely, they would reap the benefit of a loyal, supporting staff. They would also find that a united staff could contribute to the progress of the industry.

The President on Low Salaries

After the Mayor had welcomed delegates to Scarborough in the Grand Spa Hall, the annual conference of NALGO opened with an address by the President, Mr. Thomas Nolan.

He said that Britain's local government, gas, electricity, and national health services are among the biggest, most productive, and most economically run industries in the country. But low salaries were driving away many of the trained men upon whom their efficiency depends. 'We hear much nowadays of the need for higher productivity, and we are told that this alone can justify claims for higher remuneration. On that score I claim that the services which NALGO represents can bear comparison with any others in the land.'

He gave examples of the way in which the salaries of public service officers had fallen behind the general trend. He continued: 'These men are the backbone of the public services, without whose experience and skill those services could not function for a day. Nearly half of them are getting less than £9 a week, and only one in five is getting £12 a week or more. Can we wonder that our employers are finding difficulty in recruiting staff, and are losing a high proportion of those they do recruit after they have

gone to the expense of training them? '

The conference approved a report on the progress made in salary negotiations since the Association's policy was laid down at its special conference in April, when the National Executive Council was instructed to secure a drastic revision of the salary scales in order to rectify the deficiencies in the existing scales (including the fixing of appropriate differentials) in an endeavour to attract and retain staff of the right calibre; and, because of the profound dissatisfaction with the recently negotiated pay increases, to secure a revision of the existing structure of salary grading, with the object of reducing the number of grades, increasing the amount of annual increments, and ensuring that all officers should benefit on assimilation into the new grades.

The conference was asked to show confidence in its negotiators by withdrawing motions and amendments dealing with salaries and service conditions, and some 34 motions and amendments were withdrawn.

Arising from the report of the National Executive Council on progress made in superannuation matters, it was reported that it had not been possible to persuade the Minister of Fuel and Power or the Gas Council to make available to ex-municipal gas staffs with protected pension rights under the Local Government Superannuation Act, 1937, benefits comparable to those provided under the 1953 Act. An emergency resolution was unanimously carried that ' this conference requests the Minister of Fuel and Power and the Gas Council to remove serious anomalies at present existing in the pension rights of ex-municipal gas staffs arising out of their compulsory transfer to the nationalised gas industry.'

The conference agreed to instruct the National Executive Council to take steps to ensure that increases in salary on account of cost of living shall be made available to those officers whose salaries are on a personal basis. Also, for the last time it was hoped, delegates strongly supported the demand for equal pay for equal work.

Another motion received support, which expressed the view that the Whitley negotiating machinery worked far too slowly, and which instructed the NALGO members of the various staff councils to endeavour to secure speedier negotiations.

The Association's negotiators were instructed to seek to negotiate improved annual holidays for all grades, bearing in mind the ever-diminishing difference between manual workers and the employees of local and national public services. Support was also given to a motion which sought the introduction of a scheme of Saturday morning leave, with the necessary adjustment of hours within the 38-hour week.

Security of Tenure

Against the advice of the National Executive Council a resolution was passed requesting legislation to ensure that all national and local government officers have security of tenure. The National Executive Council accepted reference of a motion which asked for an investigation into the financial, legal, trade union, and general implications of general, partial, or local strike action being taken by the Association.

London Juniors Greet the Sun

The rain and the clouds cleared away early on the morning of Saturday, June 19, just at the right time to encourage a cheerful mood among the 150 London Juniors and their ladies as they arrived at Hastings by train and car for their annual Ladies' Day.

Carriages in two trains from Victoria were reserved for the party and on the first train were members who had elected to see the Glyne Gap gasworks at Bexhill. This group left the ladies to go on to Hastings and they were met at Bexhill station by a coach which took them to the works. There they were given brochures specially produced for the occasion by the South Eastern Gas Board and escorted on a short tour.

The original gas company, they learned, was established in 1832, but it is probable that the local gasworks was built somewhere about 1820. In 1854 the company obtained its first Act of Parliament, which was for incorporating and extending its powers. About then, due to congestion and purification difficulties, it was decided to transfer the works to a new site and Glyne Gap was selected.

An unusual feature of gas storage at the works is that the only gasholders situated at the works are two small C.W.G. relief holders with a total capacity of 50,000 cu. ft. The main storage station is at Queen's Road, Hastings, a distance of just over four miles from Glyne Gap works. Four 3-lift column-guided spiral gasholders have a combined effective capacity of approximately 2,200,000 cu.ft. Area of supply covered by the works is 125 square miles and the number of consumers is 25,185.

When Mr. J. D. Grant, Hon. Secretary of the Association, had managed to round up the absorbed visitors to the works, they were whisked away in their coach or joined in the procession of cars for lunch at the Queen's Hotel on Hastings Promenade.

In the hotel lounge the members joined their coolly elegant ladies, many of whom favoured smart white accessories to greet the sun.

Over after-lunch coffee, Mr. C. R. M. Croft, who is General Manager of the Sussex Division of the Eastern Gas Board, in the chair, proposed the toast of the Association and Guests. Mr. Croft who has a great talent for putting his audience in good humour, welcomed the visitors and said how pleased he was to see the ladies looking so well; they obviously stood up well to the hard life of being ' gasmen's wives.'

Saying how much he respected the Association, Mr. Croft recalled that his father, the late Colonel C. M. Croft, had written a paper to their learned body on the vacuum control system at the Wandsworth works, which at that time was considered to be a very good thing. There had been, however, a lot of rude things said about it since.

In the absence of the Chairman and Deputy Chairman, Mr. Croft extended a sincere and hearty welcome on behalf of the South Eastern Gas Board. He said it was particularly pleasant that the President of the London Juniors was present, as it gave him the chance of renewing a friendship of long standing.

Mr. W. Johnson, the Juniors' President, replied on behalf of the Association said he also was pleased to renew his acquaintanceship with the man who was his chief before nationalisation.

This was one occasion when that serious organisation, the London Juniors, was allowed to enjoy itself. Usually they spent their time together listening to or discussing papers and spending the week-end walking around gasworks. Presumably basing his assertion upon his experience of but an hour or so ago, Mr. Johnson commented that ' once you get these chaps inside the gasworks, you can't get them out.' But now they would drop their seriousness and really enjoy themselves.

This was also a pleasurable time for the long-suffering ladies who had to put up with their disappearances about once every month, while they attended meetings. Amid thoughtful laughter from the ladies, he added: ' I do hope none of the members abuses that privilege.'

Mr. Johnson continued: ' It is my pleasant duty on behalf of you all to thank the South Eastern Gas Board for their kind hospitality. This hospitality, is in my view, a measure of the importance in which the Junior Associations are held.'

Referring to nationalisation, he added that ' when the last war broke out in 1949 ' there had been some feeling, now disproved, that the junior associations were no longer necessary.

Emerging into the now brilliant sunshine the guests left the hotel in coaches to tour the picturesque Cinqué ports of Winchelsea and Rye. They returned in the late afternoon for tea, before returning to London.

Sui-Karachi Gas Pipe Line

Fibreglass, Ltd., St. Helens, Lancs, has secured the order for 10 mill. sq. ft. of pipe wrap for the Sui-Karachi gas pipe line in face of strong United Kingdom and overseas competition. This will be used as anti-corrosion protection of the 350 mile 16 in. steel pipe line project recently announced by the Government of Pakistan. D. Andersons & Sons, Ltd., Stretford, Manchester, have obtained the order for 3 mill. sq. ft. of ' Thermoglas,' a coal tar saturant outer wrap having a Fibreglass base.

The pipe line—one of the larger projects of its type—will tap the natural methane gas reserves at Sui and feed Karachi industrial undertakings in the first case, and later, will be available for domestic supplies. The basic cost of the project, which has been partly financed by the World Bank, is approximately £9 mill., and in the final stages a further £1 mill. will be spent.

The initial load is estimated to be 37 mill. cu.ft. per day for cement and power plants, which will be increased to 54 mill. cu.ft. per day after four years' operation and finally to 118 mill. cu.ft. per day by 1964. The whole of the 55,000 tons of 16 in. steel piping will be buried and the laying involves two river crossings each of 5,000 ft. (the pipe line crosses the Indus between Hyderabad and Kotri) and 20 canal crossings. The anti-corrosive protective tissue will be field wrapped on the pipes by a line travelling machine.

Institution of Gas Engineers

LONDON AND SOUTHERN SUMMER MEETING

This new refrigeration display was one of the show pieces seen by the members of the London and Southern Section when they visited the Southall works.

For the summer meeting of the London and Southern Section of the Institution of Gas Engineers on June 15 a large party of members and ladies assembled at Southall gasworks, which were open for inspection. Some of the ladies stayed for the tour round this magnificent site, but the majority went on by coach to Windsor to visit the Castle and other places of interest.

After a thorough inspection of the works, where special interest centred on the new C.W.G. plant and the tower purifiers at present under construction, works visitors went on to join the ladies for lunch at the Castle Hotel, Windsor.

Here they were the guests of the North Thames Gas Board and they were welcomed by the Deputy Chairman and Mrs. Birks. Speaking after lunch, Mr. Birks offered a particular welcome to Mr. W. K. Tate, President of the Institution, and Mrs. Tate, pointing out that it was Mr. Tate's first official visit in his new capacity and that all wished him a most happy and successful year of office.

Tribute to Dr. Burns

Mr. Tate proposed the toast of the London and Southern Section. He said that the contents of the papers emanating from the Section were notable throughout the country for their quality and variety of topic. It was essential nowadays that the members of the sections should cover a wide range, for the engineer now could not succeed without associating himself with many crafts and specialists. Referring to the Chairman, Dr. James Burns, Mr. Tate remarked that he was a direct descendant of a line of brilliant gas engineers. He, Mr. Tate, had been brought up under Thomas Hardie, one of the greatest gas engineers, and he considered Dr. Burns a worthy successor. Among other virtues he had the welcome capacity of being able to put across his talents in the papers for which he was responsible.

The Chairman, in replying, said that a successful year for the Section stemmed from those who had done the work, and he thanked especially the Secretary, Mr. A. F. Grant, the authors of papers, the engineers of works they had visited, and the North Thames Gas Board for all facilities offered.

In the afternoon, the party went for a coach drive, as the original trip up river had been cancelled by authority owing to the height at which the Thames was running.

The Nor Reps Golf Circle played the Wakefield Group of the North Eastern Gas Board on June 14, at Woodthorpe Golf Club, Wakefield. It was a very successful evening, the Wakefield Group winning by the odd game. In the club house afterwards, Dr. R. S. Edwards, Chairman of the Board, thanked the Circle, Mr. Ted Ducker, of the Parkinson made reference to the impending move of one of the oldest members of the Circle, Mr. Ted Tucker, of the Parkinson Stove Co., Ltd., who is moving from the North East to the Southern Area.

Rams Golfing Society

The Society held an open meeting at the Sudbrook Park course of the Richmond (Surrey) Golf Club on June 22, when 23 visitors enjoyed the hospitality of Messrs. R. & A. Main. Mr. L. A. W. Barnes is this year's Captain, and Mr. J. Elliott Clark, Secretary. For the Stableford Competition W. Banks (Tottenham) and H. C. Dunbar (St. Albans) tied with 38 points; L. Sutton (Tottenham) was third with 37. S. J. Simons (Tottenham) returned the lowest gross score (82), and H. C. Dunbar the lowest net (68). A hidden holes prize went to D. Ellis (N.T.G.B.).

Thermal Efficiency

The increased demand in Europe for gas either as town gas, producer gas, or synthesis gas for the production of oils and chemicals has led to the consideration of the use of low grade or small sized coals not normally used for gas making. A special working party of the O.E.E.C. Committee for the Co-operation of Scientific Research was set up to ascertain what work had been done on the gasification of solid fuels in the form of fines, particularly by methods which could be used under pressure.

A report has been drafted by experts from ten European countries and published under the title of Increased Thermal Efficiency of Solid Fuel through Gasification (Stationery Office, 8s. 6d.). The report outlines the thermal and chemical basis of the different types of gasification processes, and gives also a detailed description and assessment of each process with special emphasis on the possibility of co-operative research among member countries.

Comments on the report and requests for further information should be addressed to Mr. R. Ashton, Intelligence Division, Department of Scientific and Industrial Research, 15, Regent Street, S.W.1.

PARKINSON DEMONSTRATION THEATRE

View of the demonstration section of the Parkinson theatre.

A new demonstration theatre, designed in striking contemporary style, has been opened at the works of the Parkinson Stove Co., Ltd., at Stechford, Birmingham. With a seating capacity of 63, the theatre has been decorated in an attractive colour scheme of rust red, grey, and yellow. Modern wall lights and yellow doors make a splash of colour against the two tone grey walls; the upholstered seats are in rust red moquette on a gay mustard-yellow flooring. Brightly patterned stage curtains screen off the back wall of the demonstration section.

North Thames Price Pegged

Subject to unforeseen increases in costs beyond the control of the Board, Mr. Michael Milne-Watson, Chairman of the North Thames Gas Board, told the Gas Consultative Council at its meeting at Caxton Hall on June 24 that the Board had decided to peg the price of gas until March 31, 1955.

Mr. Milne-Watson recalled that early in 1953, just after a substantial increase in the price of coal, he told the Council the Board would peg the price until March 31, 1954. In the 12 months that elapsed costs rose considerably but the Board honoured its undertaking. The increases in cost came principally from wages and salaries, freight charges, and depreciation of capital. The modernisation of the undertaking and the installation of additional plant to meet the increasing public demand, of which they had such a vivid example in the cold weather last February, inevitably meant heavier charges for capital.

Disappointed at N.C.B.

In March, 1953, the hope was held out by the National Coal Board that the limit of increased coal prices had been reached. That hope was dashed by an increase of 3s. 4d. a ton in the price of coal from May 3, 1954. After taking credit for increased revenue from coke and breeze the total cost to the Board in a full year of all the increases mentioned could hardly be less than £1 mill.

Under the Gas Act they were enjoined to balance one year with another and the Board's record since nationalisation had been, he felt, a thoroughly satisfactory one, having shown a reasonable margin in each year. Now would appear to be the time, by means of yet further economies, and increased efficiency, to continue to hold the price even though the Board might run a risk of a debit balance at the end of the current year's working. Members attached great importance to stability of price in the national economy at the present time and here gas, as a prime fuel in industry and in the home, bore a heavy responsibility. Industrialists in their competitive markets at home and abroad wished to be able to look ahead and rely on steady prices for gas for use in their heat processes. Domestic consumers, who were buying more new gas appliances than ever before in the history of the industry, did not want the convenience and economy of gas to be offset by an increase in its cost.

'It would be idle to pretend to you that we are not bitterly disappointed in the action taken by the National Coal Board,' continued Mr. Milne-Watson. 'In 1953 it announced that it had adopted a scientific price formula under which its customers could rely on a fair and equal apportionment of any increased costs. The present price increases of coal to the gas industry bear no relation to the so-called scientific formula and are clearly based on the National Coal Board's idea of what it considers the market can bear. For example, the average increase in the cost of coal to the British Electricity Authority is 1s. 5d. per ton, to the gas industry it is 2s. 11d. per ton.

'In this situation the Board has taken account of what has already been achieved by way of technical efficiency in gasmaking and economy in administration. It recognises the possibility of further increases in costs over which it would have no control and which might make it necessary to put up the price of gas. But, subject to that possibility, it has decided to peg the price of gas for a further year until March 31, 1955. I hope you will wish us luck in a decision which should help to hold down the cost of living to 1,700,000 domestic consumers directly and many others indirectly as customers of our commercial and industrial consumers.'

Coal Alternatives

In answer to questions, Mr. Milne-Watson said the gas industry had two possible alternatives to the use of coal, namely, the production of gas from oil, and the discovery in sufficient quantities of natural gas. If the exploratory work now going on in Scotland, in Yorkshire, and in Sussex resulted in the discovery of natural gas in quantity the whole field of raw materials for the gas industry would be changed.

Mr. Milne-Watson was accompanied by Mr. F. M. Birks, Deputy Chairman, Mr. Brian Wood, Secretary, and Mr. O. W. Wells, Chief Accountant.

Stockton-on-Tees Inauguration

The Hon. L. W. Joynson-Hicks, M.A., M.P. (Parliamentary Secretary, Ministry of Fuel and Power), unveiled a plaque on June 22 to inaugurate the new carbonising plant recently completed and put into operation by West's Gas Improvement Co., which was fully described and illustrated in the 'JOURNAL' of June 23 (pp. 849-852).

MR. E. CROWTHER, C.B.E., Chairman of the Northern Gas Board, in welcoming the guests, made special mention of the honour done them by the visit of neighbouring Mayors, especially the Mayor of Stockton, Alderman P. Horner, J.P. He also welcomed Mr. F. L. Scaife, who had recently retired but had seen so much of this project through. Prior to nationalisation, Mr. Crowther continued, both Stockton and Middlesbrough gas undertakings had placed orders with West's for carbonising plant, but with the altered circumstances it was finally decided to put both contracts together and build one new plant at Stockton. He hoped that it would result in more healthy surroundings by producing two smokeless fuels. He welcomed Colonel Sir Harold Smith, Chairman of the Gas Council, and concluded by presenting Mr. Joynson-Hicks with a silver salver to commemorate the occasion.

MR. JOYNSON-HICKS, replying, said that in legal jargon the birth of Stockton could be described as being 'by Stockton, out of Middlesbrough, nationalisation intervening.' He was always pleased to see new plants come into use as the gas industry had been an industry of progress right from the start. He forecast a great deal of future development in the production of gas from oil carbonisation. 'But we shall never be able to get away from the conventional methods of gas production from coal and we must use them in the best manner possible,' he said. The new plant would mean more gas from less coal, the closing down of smaller and obsolete plant and a further step forward by the industry in the north. He congratulated all responsible for the planning initiative, contracting, design and building of the new works. He was glad to know that the search for new methods of gas making was going on, although the Northern Gas Board was particularly lucky in being able to get both National Coal Board and steel works coke oven gas.

ALDERMAN P. HORNER, J.P., Mayor of Stockton-on-Tees, proposing the toast of the gas industry, mentioned his previous experiences with the industry. He drew attention to his Borough's Charter dating back to 1495, the first railway line and the fact that Stockton gasworks was among the first in the country to supply gas to domestic consumers. Nevertheless, the power to go on was still with them as this new plant showed.

SIR HAROLD SMITH, Chairman of the Gas Council, in reply, said that this was one of the most efficient methods of carbonising coal. There were other methods now and he hoped that eventually the gas industry would be able to get rid of coal altogether. He also stated how invaluable was the collaboration between the supply side of the industry and the contractors.

MR. ERNEST WEST, Joint Managing Director, West's Gas Improvement Co., Ltd., replied briefly on behalf of the contractors.

D. & C. and William Press

D. & C. & William Press was formed a few years ago by the Demolition & Construction Co., Ltd. and William Press & Son, Ltd. The Company has carried out many large projects as contractors and consultants, and is at present engaged on important civil, mechanical, and chemical engineering works in Great Britain, the Middle East and Australia. It is taking an active interest in the distribution and utilisation of natural gas, and has submitted reports to the appropriate authorities on the development for domestic and industrial purposes of the resources of Iraq, Kuwait and Bahrein, and is already engaged on this development in the two latter places.

In collaboration with an American firm, the Morrison-Knudsen Company, the Company has been awarded the contract for laying the 350 mile long 16 in. pipeline to convey natural gas from Sui to Karachi in Pakistan. This contract entails the laying of the pipe at a rate of approximately two miles a day on a route which is mostly at a considerable distance from road or rail communications.

Mr. C. D. Shann, whose appointment is announced in our 'Personal' columns on p. 903, joined the Company to assist in the investigations and preparation of a report for the Pakistan Industrial Development Corporation on the development of a public gas supply in the Federal Area or Karachi. As Karachi now has a population larger than that of Birmingham or Glasgow, and as building development is planned to provide for the population to double by the year 2000, the gas load potential, particularly in the industrial field, is considerable. Since this investigation was started the Company has been asked to submit reports on the supply of natural gas to two more towns in Pakistan and in the Qatar area of the Persian Gulf, while the development of natural gas resources in Canada may lead to further work.

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The " Gas Journal " is published every Wednesday, price 1/3d.; by post 1/5d.

Subscription Rates: Home and Empire:—52/- per annum; Foreign:—60/- per annum. (Both payable in advance.) A copy of the " Gas Journal " Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements: All small classified advertisements are charged at 1/9 per line (approx. 7 words)—minimum charge 10/6. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

Displayed Advertisements: Rates obtainable on application to the Business Manager. Change of copy for displayed spaces must be received 14 days prior to publication if proofs are required. Type area of inside pages 10" deep × 7" wide; block screen 120.

BUSINESS MANAGER : S. T. CULLEN

MIDLANDS MANAGER: G. B. Torrance, 42, Wychall Lane, King's Norton, Birmingham, 30.

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APPOINTMENTS VACANT

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

CHIEF CHEMIST.—Applications are invited for the situation of Chief Chemist with South-Eastern Tar Distillers Limited, Vale Road, Tonbridge. Candidates must be qualified and must have had extensive experience in industry with particular knowledge of continuous tar and benzole distillation. Permanent situation with superannuation. Salary commensurate with qualifications and experience.

Apply in writing to the General Works Manager, South-Eastern Tar Distillers Limited, Vale Road, Tonbridge.

WEST MIDLANDS GAS BOARD

STOKE-ON-TRENT DISTRICT
ASSISTANT DISTRIBUTION SUPERINTENDENT
LONGTON DISTRICT

CANDIDATES should have a sound knowledge and practical experience of mains and service laying, the installation of domestic and industrial gas supplies, experience in the working and maintenance of district governors and the control and supervision of workmen. The possession of an Ordinary or Higher Grade Certificate in Gas Engineering and Supply will be an advantage.

The salary will be within Grade VI (£510-£590 per annum) of the National Salary Scales for Gas Staffs.

The post is pensionable and the successful candidate may be required to pass a medical examination.

Applications, stating age, personal details, qualifications and experience, together with the names of two referees, should be addressed to Mr. J. E. Stanier, Divisional General Manager, Etruria Gas Works, Stoke-on-Trent, to reach him within fifteen days of the appearance of this advertisement.

F. H. CURETON,
Secretary to the Board.

(*Classified Advertisements continued on page* 926)

APPOINTMENTS VACANT (ctd.)

GAS ANALYSIS. This post requires a chemist with wide experience of gas analysis by chemical and physical methods, preferably in the petroleum industry. The duties would consist of the co-ordination of test methods developed by various research departments, together with the development of methods of gas analysis suitable for plant control purposes.

Salaries commensurate with qualifications and experience will be paid for these positions.

A generous pension scheme is in operation, and applications giving full details should be addressed to the Personnel Manager, Petrochemicals Ltd., Partington Industrial Estate, Urmston, Manchester.

EASTERN GAS BOARD

NORWICH DIVISION
WORKS TECHNICAL ASSISTANTS

APPLICATIONS are invited for two TECHNICAL ASSISTANTS in the Norwich Division, one to operate at Lowestoft and the other between Cromer and Sheringham Gas Works. The commencing salary will be within the range of Grades A.P.T. IV and V of the National Joint Council for Gas Staffs, Provincial 'A' Scales. At Lowestoft there is a flat available adjacent to the Works.

The duties will consist of carrying out routine works tests and technical supervision of horizontal carbonising plant, C.W.G. plant and the usual ancillary plant, and candidates should possess suitable qualifications and experience.

The successful candidates will be required to pass a medical examination and unless already subject to a pension scheme by virtue of the Gas (Pension Rights) Regulations 1950, will be required, if eligible, to join the Board's Staff Pension Scheme within six months from taking up the appointment.

Applications stating age, experience and qualifications and giving names of two referees should be addressed to the Divisional General Manager within fourteen days of the appearance of this advertisement.

Thorpe Lodge,
1, Yarmouth Road,
Norwich,
Norfolk.

EAST MIDLANDS GAS BOARD

SHEFFIELD & ROTHERHAM DIVISION
TECHNICAL ASSISTANT—
GRIMESTHORPE WORKS, SHEFFIELD

APPLICATIONS are invited from suitably qualified persons for the above appointment at the Grimesthorpe Works, Sheffield, at a salary within Grades A.P.T. IV/VI of the National Salary Scales for Gas Staffs (£320-£590). The initial placing on the grades will be in accordance with the experience and qualifications of the successful applicant.

Applicants should be in possession of the Institution of Gas Engineers Higher Grade Certificate in Gas Manufacture or have equivalent qualifications, and be experienced in the operation of Horizontal Retorts, Carburetted Water Gas Manufacture and purification processes.

The post is superannuable and the successful candidate will be required to pass a medical examination and, unless already subject to a pension scheme by virtue of the Gas (Pension Rights) Regulations 1950, will be required, if eligible, to join the Board's Staff Pension Scheme within six months from taking up the appointment.

Applications, giving details of education, training and experience, together with the names and addresses of two referees, should be addressed to reach the undersigned not later than July 24, 1954.

CHAS. C. WOOD,
Divisional General Manager.

Commercial Street,
Sheffield, 1.
June 24, 1954.

NORTH of England Company require Manager with experience in the technical design and manufacture of Gas Appliances. Salary offered in the region of £1,200 per annum. Excellent position for applicant with ability, initiative and drive. Replies, which will be treated in strict confidence, should state academic and practical experience. Apply: No. 203, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

LABORATORY ASSISTANT for interesting work on gas analysis in field of petroleum chemicals. Preferably with Higher National Certificate and with some experience and a definite interest in Electronics.

Salary according to age and experience.

A generous pension scheme is in operation, and applications giving full details should be addressed to the Personnel Manager, Petrochemicals Ltd. ,Partington Industrial Estate, Urmston, Manchester.

SCOTTISH GAS BOARD

GREENOCK, GOUROCK AND
PORT GLASGOW DISTRICT
DISTRIBUTION SUPERINTENDENT

APPLICATIONS are invited from suitably qualified persons for the above position. The post is graded A.P.T. IX (£635-£735 per annum) with placing according to qualifications and experience.

Applicants should have good all round Distribution experience including High Pressure Supply and must have ability to control and organise labour.

A house, if necessary, will be made available at a moderate rent.

Applications, stating age, qualifications and experience should be addressed to the undersigned to be received not later than ten days from date of publication of this advertisement.

WILLIAM KIRK,
District Manager.

Inchgreen Gas Works,
Greenock.
June 22, 1954.

WALES GAS BOARD

PONTYPOOL UNDERTAKING

APPLICATIONS are invited for the following posi ions at the above Undertaking :—

SENIOR TECHNICAL ASSISTANT (CHEMICAL)

Candidates should possess the Institution of Gas Engineers Higher Grade Certificate in Gas Engineering (Manufacture) or equivalent qualification and must be able to undertake the execution and interpretation of all chemical tests necessary on a modern works. A thorough knowledge of carbonisation in C.V.R. and the ability to undertake special technical investigations and report thereon are also essential.

Commencing salary for the above appointment within A.P.T. VIII (Provincial 'A') £605-£685 per annum of National Salary Scales for Gas Staffs.

TECHNICAL ASSISTANT (ENGINEERING)

Applicants must have had a good Drawing Office experience and be able to prepare Works layout, pipe work and steel work details. Experience with a Contractor and/or technical knowledge of Gasworks processes will be an advantage. Possession of the Higher Grade Certificate in Gas Engineering or equivalent qualification will be an advantage.

The commencing salary will be within Grade A.P.T. VII (Provincial 'A') £565-£645 per annum of the National Salary Scale for Gas Staffs.

The successful candidates will be required to pass a medical examination and to contribute to the Board's Superannuation Scheme.

Applications, stating age, qualifications and experience, together with details of present and previous appointments, and the names of two referees, should be received by the undersigned not later than July 15, 1954.

A. FACER,
General Manager.

Gas Offices,
Hanbury Road,
Pontypool,
Monmouth.

NORTH WESTERN GAS BOARD

LIVERPOOL GROUP
DEPUTY GROUP PRODUCTION ENGINEER

APPLICATIONS are invited for the above pensionable appointment at a salary of £1,550 per annum.

Applicants must be qualified by training and experience in the control, operation and maintenance of all types of modern Gas Works plant and have a sound knowledge of plant construction. Applicants should preferably be Corporate Members of the Institution of Gas Engineers.

Forms of application may be obtained by writing to the Chief Personnel Officer, North Western Gas Board, Liverpool Group, Radiant House, Bold Street, Liverpool, 1, and should be returned to him within fourteen days.

PLANT etc. FOR SALE & WANTED

FOR SALE:—One modern Incandescent Gas-fired Furnace, working chamber 24 in. × 18 in. × 12 in. high, also gas-heated tempering bath, complete with pyrometer outfit and tank. Practically unused.—J. C. Wetter & Co., 23 Middle Street, London, E.C.1. *Tel.*: MONarch 8936.

WANTED

ALWAYS buying Scrap Mercury: Maximum prices.—Belgrave Buyers (G.J.), 5, Belgrave Gdns., London, N.W.8. MAI 7513.

AGENCY

AGENTS required for sale of Syphon Pots, Surface Boxes, etc.; good commissions. Apply: No. 197, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

PATENTS

KINGS PATENT AGENCY, LTD
(Director, B. T. King, A.I.M.E., Patent Agency)
Advice, Handbook, and Consultations free. 146a, Queen Victoria Street, London, E.C.4. 'Phone: City 6161.

MISCELLANEOUS

PRESSURE GAUGES in transparent plastic block. Unblowable, unspillable. Prices now considerably reduced. Write: G.J./Combustion Instruments, BCM/COMB, W.C.1.

STEREO AIDS EDUCATION

in that it is a more dynamic presentation than any other of following step by step the erection of complicated plant.

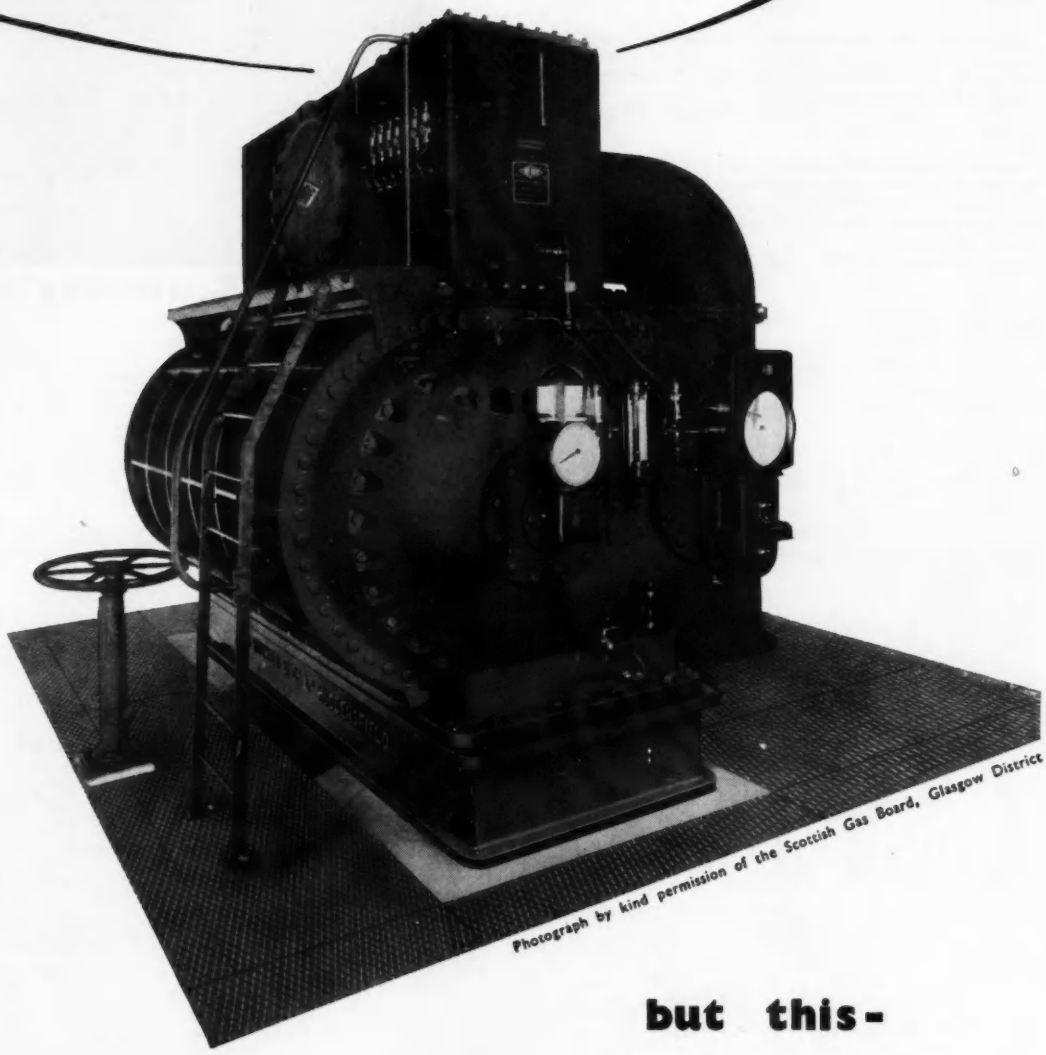
District Gas Education Committees are urged to make further enquiries to

Walter King Photography,

11, Bolt Court, Fleet Street, E.C.4
CEN 2236

Lead...
SHEETING, WATER, WASTE
GAS AND SOIL PIPES
TO CUSTOMERS' REQUIREMENTS. MANUFACTURERS OF
EMBOSSED LEAD PIPE, AS SUPPLIED TO GAS BOARDS
by R.E.ROBERTS & SON, LTD.

size isn't everything-



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but this-

HOLMES-CONNERSVILLE
***Positive* GAS METER**

is the largest in Great Britain. The important thing is that it is so relatively small (floor space 8ft. × 14ft.) handling 31 million cu. ft. of gas per day.

FOUNDED 1850 HOLMES HUDDERSFIELD

W. C. HOLMES & CO. LTD. · HUDDERSFIELD · LONDON · BIRMINGHAM

Telephones : Huddersfield 5280 ; London Victoria 9971 ; Birmingham Midland 6830

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industrial gas compressors

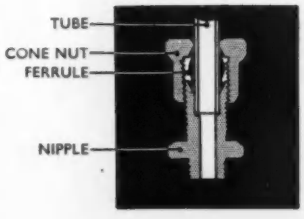
FOR COMPRESSING AIR OR GAS SUPPLIES USED FOR FURNACE HEATING, METAL MELTING, BRAZING, SOLDERING BITS, LAUNDRY IRONS, ETC.

DIRECT COUPLED COMPRESSORS (see illustration right) are fitted with automatic internal by-pass valves and lubrication systems. They are direct coupled to Keith Blackman motors. Type OA compressors in this range occupy a floor space of only 18" x 7½".
CAPACITY RANGE: 100 to 750 cub. ft. of gas or air per hour at 3 lbs. per sq. in. pressure.

TYPE 4 COMPRESSORS (not illustrated) are also fitted with automatic internal by-pass valves and lubricators. The complete unit includes motor and drive on a common bedplate, all of Keith Blackman manufacture.
CAPACITY RANGE: 500 to 20,000 cub. ft. of gas or air per hour at 3-5 lbs. per sq. in. pressure.
AREA OCCUPIED: from 9½" x 16½" to 61" x 27".

DID YOU KNOW?

KEITH BLACKMAN have been making compression joints for many years and the present design embodies features developed as a result of this long experience. Notice that the shape of the ferrule is such that the joint is made without unduly stressing the tube.



Keith Blackman LIMITED
HILL HEAD ROAD, TOTTENHAM, LONDON, N.17
'Phone: Tottenham 4522 (twelve lines) 'Grams: "Keithblac, Norphone, London"
BRANCH OFFICES AT MANCHESTER, BIRMINGHAM, LEEDS, GLASGOW, NEWCASTLE-ON-TYNE, PENARTH (near CARDIFF) AND BELFAST

serving to burn

Note: the four burner heads (right) are for high pressure gas, or low pressure gas and air blast.

LEFT: "Fishtail" type burner with two-armed stamped pattern injector for heating liquid in tanks by submerged combustion tubes. For use with low pressure gas supplies. **Size Range:** 1", 1¼", 1½", 2" and 2½" outlets. **Capacity Range:** 45-280 cub. ft. of gas per hour.

Brass non-blow-off head types: deal with 5 to 10 cub. ft. of gas per hour.

Stainless steel, "F" type head, burner: deals with 8 cub. ft. of gas per hour.

Perforated head type burner: deals with 10 to 15 cub. ft. of gas per hour.

INDUSTRIAL GAS EQUIPMENT

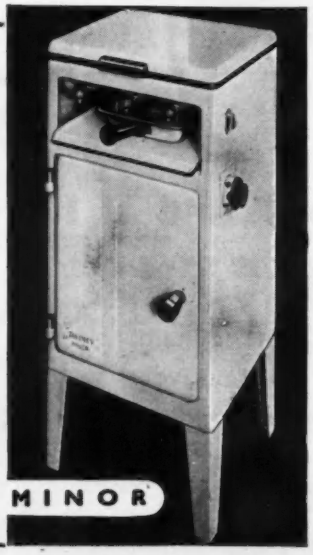
524

BIG Capacity for LITTLE Kitchens

Especially suited to the kitchens of flats and small houses, this highly efficient cooker provides utmost cooking capacity in the least possible space. Cast iron construction ensures strength and durability and reduces maintenance costs to a minimum, thus making the Dainty Minor particularly suitable for simple hire or hire purchase.

Approved and adopted by leading gas boards

The **Dainty** MINOR



R. RUSSELL & SONS, LTD., DERBY
Agents for Scotland and Northern Ireland:
JAMES R. THOMSON & CO. LTD., 41, YORK STREET, GLASGOW, C.2

M & M PATENT METER LOCKS

use the STRONGEST, SAFEST METER LOCK

- **DON'T** buy locks you may have to scrap in a few years
- **DON'T** look only at the initial cost
- **DON'T** think only of the present time; look to the future
- **DO** remember that good quality is cheapest in the long run
- **DO** take our word for it that our workmanship is consistently good
- **DO** profit by others' experience and use M. & M. Locks to protect your meters

H. MITCHELL & CO.
36, 38, NEW CHARLES STREET, LONDON, E.C.1

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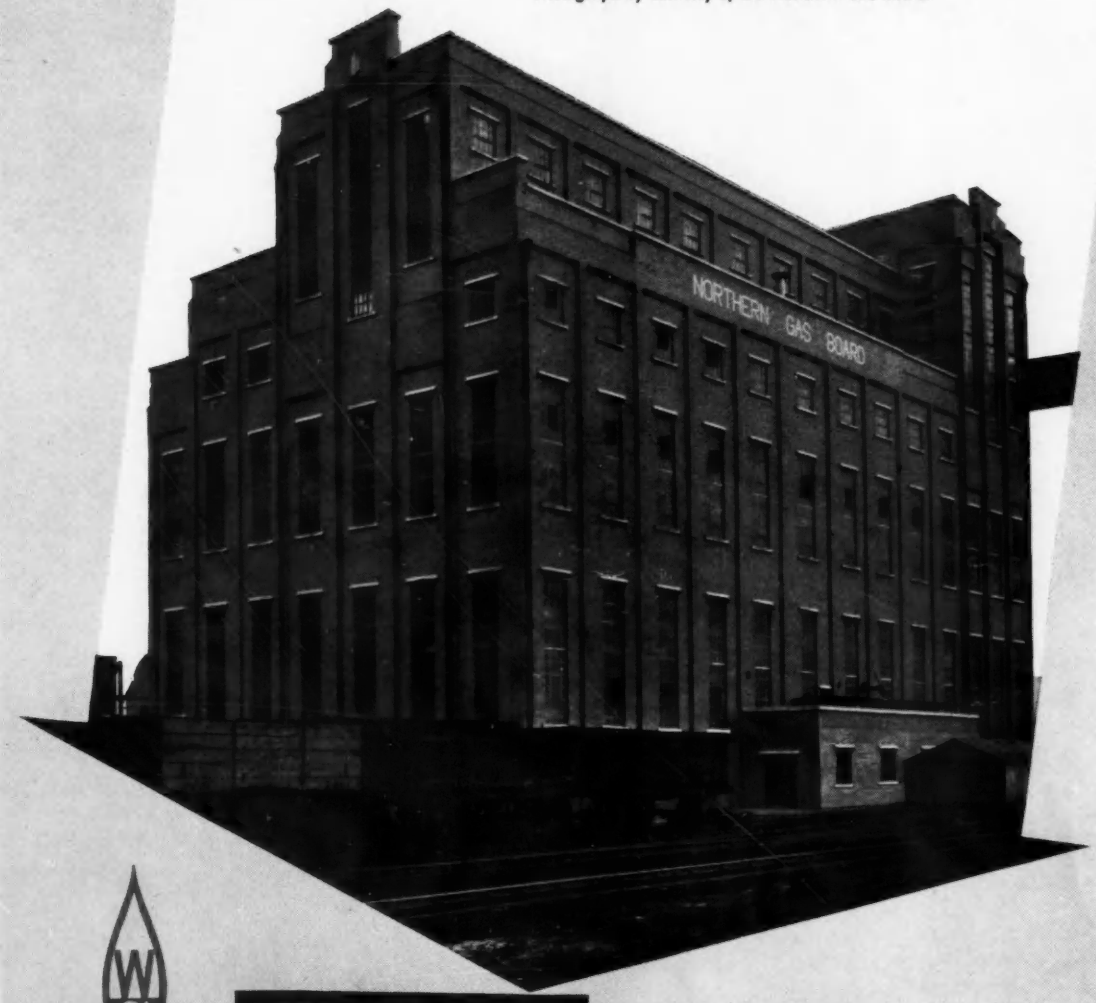
STOCKTON'S NEW PLANT . . . .

An installation of 64 Glover-West Continuous Vertical Retorts, built for the Tees-side Division of the Northern Gas Board. The settings are constructed on the "Balanced Heating" principle and fuel gas is generated in West's "Hot Gas" Mechanical Producers. Coke extraction from retorts is by Sector Extractor. The installation which has been in production for some months and was recently inaugurated, has a nominal daily capacity of 4,000,000 cubic feet of gas and includes complete coal and coke handling plant.

Photograph by courtesy of the Northern Gas Board.



WEST'S

GAS IMPROVEMENT CO. LTD

MILES PLATTING · MANCHESTER 10

Tel.: COLlyhurst 2961 Grams: Stoker, Manchester

London Office: Columbia House, Aldwych, W.C.2.
Tel.: HOLborn 4108-9 Grams: Wesgasco, Estrand

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OR

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CONSTRUCTIONAL ENGINEERS

IRON & STEEL STOCKHOLDERS

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